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U.S. BARLEY INDUSTRY STATISTICS: 1950 - 76

Walter G. Heid, Jr.

and

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#30

Commodity Economics Division

Economics, Statistics, and Cooperatives Service

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Barley is one of the four major feed grains grown in the United States. However, if present trends continue, it will be produced primarily for malting purposes within the next 10 to 20 years. Demand for malt is increasing at an annual rate of 3 to 5 percent while the demand for barley for livestock feed is largely residual. As this change in primary demand occurs, barley production will require new policy considerations. These tables and references are a supplement to an earlier report--U.S. BARLEY INDUSTRY (AER-395).

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U.S. BARLEY INDUSTRY STATISTICS: 1950-76

by

Walter G. Heid, Jr. and Mack N. Leath 1/

INTRODUCTION

Barley is one of four major feed grains grown in the United States. However, if present trends continue, it will be produced primarily for malting purposes within the next 10 to 20 years. The demand for malt is increasing at an annual rate of 3 to 5 percent, while the demand for barley for livestock feed is largely residual. Only about 47 percent of the disappearance in 1976/77 (180 million bushels) was for domestic livestock feed.

The tables, figures, and selected bibliography included in this report are published as a supplement to the research study, U.S. Barley Industry (AER-395) conducted by the Commodity Economics Division, Economics, Statistics, and Cooperatives Service, U.S. Department of Agriculture.

This supplement includes more data and a longer time series for certain key data. It also includes more detailed illustrations of product flows and an expanded bibliography. More specifically, the statistical data included in this report expand previous data on off-farm marketing practices, industry concentration, and industry sales estimates which will likely come to the forefront as certain industry trends occur.

SYNOPSIS

During its early U.S. history, barley was grown primarily for malting. The acreage harvested doubled between 1800 and the end of World War I. When the 18th (prohibition) amendment to the U.S. Constitution became effective in 1920, barley used in making alcoholic beverages decreased sharply. At the same time, barley production as livestock feed increased, and barley became one of the four major U.S. feed grains. Although the demand for malting varieties began to increase after the 18th amendment was repealed in 1934, feed barley continued to be an important crop.

Supply

In the last 50 years, the production of malt barley has gained in importance relative to feed barley. Within the next 10 to 20 years, the volume of malt barley production is projected to overtake feed barley production. This,

1/ Agricultural Economists, Economics, Statistics, and Cooperatives Service, stationed at Manhattan, Kansas, and Urbana, Illinois, respectively.

of course, depends on two factors--the continued growth in demand for beer, and no decrease in the acreage allotted to wheat production. Changes in the national wheat program have had a profound effect on barley acreages in recent years. Barley production is largely concentrated in the northern Great Plains where it competes with wheat for space. Barley acreage has decreased in years of increased wheat seedings, and vice versa. With world population growth projected to double by shortly after the year 2000, it is quite likely that the demand for both wheat as a food grain and barley for malt will increase.

North Dakota, California, Montana, Idaho, and Minnesota account for nearly 75 percent of the total U.S. barley production. Over 95 percent of the barley grown in North Dakota and Minnesota is now of the malting type.

About 15 to 20 percent of the barley is produced on irrigated land. In the case of malt barley, irrigation is important because it allows the producer to better control quality. Malt barley must meet certain specifications in terms of kernel size, plumpness, and protein to be acceptable to maltsters.

Annual production has accounted for about three-fourths of the total barley supply in recent years. Imports have accounted for 2 to 3 percent, and stocks have accounted for the remainder. Stocks have been divided about equally between farm and off-farm locations. In recent years, approximately two-thirds of production has been sold off farms.

Demand

Total disappearance has been about 400 million bushels per year since 1950, with domestic use generally accounting for over 80 percent. The use of barley for livestock feed peaked at 286 million bushels in 1970 and has declined since. In contrast, the trend in demand for malt barley has been steadily upward since 1960. During the 25-year period from 1950/51 to 1974/75, the production of malt beverages nearly doubled and per capita consumption of beer increased from 16.8 to 21.4 gallons.

If present trends continue, barley will be produced primarily for malting purposes within the next decade or two. Estimates of domestic malt barley demand from 1980 through the year 2000 follow: 2/

Year	Million bushels
1980	140.7
1985	158.0
1990	175.2
1995	192.5
2000	209.7

2/ These estimates were computed as follows: $Q_D = 2439.53 + 117.275\ T$ where Q_D = quantity used by brewers, $r = 0.9931$, and $T = 1, 2, 3, \ldots$, 1960 = 1.

Prices

National grain programs have been a major force affecting barley supply and, in turn, barley price. General price relationships within the industry depend on the marketing channels used as well as the time, place, and form (processing) utility added to the commodity after it is produced.

Dual pricing occurs in the barley industry, with one price for malting barley and another for feed barley. Prices for each type reflect unique supply and demand forces. At the same time, the prices of malting and feed barley are not totally independent. In times of short supply of malt barley, certain amounts of feed barley may be used for malting, and vice versa. Feed barley prices also are related to other grain prices. Feed barley may be priced in relation to corn in corn producing areas, and more nearly in line with malt barley prices in the northern Great Plains and Pacific Northwest.

There is no futures market for barley. As a result, ownership risks cannot be shifted from cash buyers and sellers to speculators, nor can participants in the barley trade hedge their transactions. The use of contracts is becoming increasingly popular for malt barley which tends to protect both buyer and seller. However, in years like 1973 and 1974, when prices changed dramatically, this procedure of establishing price did not prove satisfactory.

Industry Organization and Practices

Major channels of trade are via country elevators, terminal elevators, maltsters, and brewers. However, there are some changes occurring in the assembly and distribution process which may eventually change this flow pattern. In the barley trade, it is important to keep malting barley, as well as varieties of malting barley, segregated. Several methods are presently being used, including the construction or purchase of special storage facilities in production areas by large-scale farmers and maltsters, as well as contract specifications. The former practice leads to a greater degree of vertical integration either forward or backward. The latter results in malt barley that may pass through a terminal facility for inspection only.

Both the malting and brewing industries are highly concentrated. The four largest maltsters accounted for about 50 percent of the malt production in the early seventies, while the four largest breweries accounted for over 50 percent of the beer sales. Two trends are apparent. First, growth in both the malting and brewing industries is largely limited to large firms. Second, small firms are egressing.

Policy

U.S. farm programs in most years have included barley, although feed grain programs have generally dealt mainly with corn. Perhaps, however, the greatest effect on barley production has been the status of wheat production. Barley tends to be substituted for wheat in years when wheat production is regulated and, conversely, barley acreage decreases sharply when no restrictions are placed on wheat production. This substitution is less in major malt barley

production areas and may become less pronounced as the major use of barley changes from feed to malt--a change which will require new policy considerations.

World Production and Trade

The United States has accounted for less than 10 percent of the world barley trade in recent years. U.S. export trade is quite sporadic in terms of both countries and volume. U.S. barley is used to supplement short supplies of malting barley by some countries, for a food product by some, and as a feed grain by still others. Major U.S. markets in recent years have been West Germany, Italy, Poland, South Korea, and Mexico.

International barley prices tend to fluctuate more than corn prices, and at times may rise by 50 percent or more within a few months. These price fluctuations provide a contrast to more stable corn prices, and reflect a basic difference in the structures of the two markets. The more stable corn prices reflect the prominence of the United States in that world market, accounting for about 50 percent of total world exports.

TABULAR DATA AND ILLUSTRATIONS

The following tables and figures provide a central source of information on the barley industry. Generally, the data cover the quarter century of barley production and marketing beginning in 1950.

Table 1--Barley: Acreage planted, acreage harvested, yield per harvested acre, and production, 1900-76

Year	Acreage		Yield per harvested acre	Production
	Planted	Harvested		
	Million acres		Bushels	Mil. bu.
1900	NA	4.7	20.5	96.6
1901	NA	5.0	24.9	123.8
1902	NA	5.5	26.7	146.2
1903	NA	6.2	24.0	149.3
1904	NA	6.6	25.2	166.1
1905	NA	6.7	25.8	171.6
1906	NA	6.7	26.6	179.1
1907	NA	6.9	22.0	150.6
1908	NA	7.4	23.1	170.8
1909	NA	7.7	22.5	173.1
1910	NA	7.5	18.9	142.4
1911	NA	7.6	19.1	145.1
1912	NA	7.5	26.1	196.9
1913	NA	7.7	20.7	158.8
1914	NA	7.7	23.2	177.7
1915	NA	7.3	28.4	207.0
1916	NA	7.6	20.9	159.2
1917	NA	8.5	21.6	182.2
1918	NA	9.2	24.5	225.1
1919	NA	6.6	19.9	131.1
1920	NA	7.4	23.0	171.0
1921	NA	7.1	18.8	132.7
1922	NA	6.6	23.2	152.9
1923	NA	7.2	22.2	159.0
1924	NA	7.0	23.5	165.3
1925	NA	8.2	23.5	192.5
1926	NA	7.9	21.0	166.0
1927	NA	9.5	25.3	239.1
1928	NA	12.7	25.8	328.4
1929	14.7	13.6	20.7	280.6
1930	13.6	12.6	23.9	301.6
1931	13.8	11.2	17.9	200.3
1932	14.6	13.2	22.7	299.4
1933	14.2	9.6	15.9	152.8
1934	12.0	6.6	17.8	117.4

Continued--

Table 1--Barley: Acreage planted, acreage harvested, yield per harvested acre, and production, 1900-76--Continued

Year	Acreage		Yield per harvested acre	Production
	Planted	Harvested		
	Million acres		Bushels	Mil. bu.
1935	14.0	12.4	23.2	288.7
1936	12.8	8.7	17.7	147.7
1937	12.3	10.0	22.3	221.4
1938	12.2	10.6	24.2	256.6
1939	15.5	12.7	21.8	278.2
1940	14.7	13.5	23.0	311.3
1941	14.9	14.3	25.4	362.6
1942	19.7	17.0	25.3	429.5
1943	17.5	14.9	21.7	322.9
1944	14.3	12.3	22.5	276.3
1945	11.7	10.5	25.5	267.0
1946	11.5	10.4	25.5	265.1
1947	11.3	11.0	25.7	281.9
1948	13.1	11.9	26.5	315.5
1949	11.1	9.9	24.0	237.1
1950	13.0	11.2	27.2	303.7
1951	10.8	9.4	27.3	257.2
1952	9.2	8.2	27.7	228.2
1953	9.6	8.7	28.4	246.7
1954	14.7	13.4	28.4	379.3
1955	16.3	14.5	27.8	403.1
1956	14.7	12.9	29.3	376.7
1957	16.4	14.9	29.8	442.8
1958	16.2	14.8	32.3	477.4
1959	16.8	14.9	28.3	420.2
1960	15.5	13.9	31.0	429.0
1961	15.6	12.8	30.6	392.4
1962	14.4	12.2	35.0	427.7
1963	13.5	11.2	35.0	392.8
1964	11.7	10.3	37.6	386.1
1965	10.1	9.1	43.2	393.1
1966	11.2	10.2	38.3	392.1
1967	10.1	9.2	40.5	373.7
1968	10.5	9.7	43.8	426.1
1969	10.3	9.6	44.7	427.1

Continued--

Table 1--Barley: Acreage planted, acreage harvested, yield per harvested acre, and production, 1900-76--Continued

Year	Acreage		Yield per harvested acre	Production
	Planted	Harvested		
	Million acres		Bushels	Mil. bu.
1970	10.5	9.7	42.8	416.1
1971	11.1	10.2	45.7	463.6
1972	10.6	9.7	43.6	423.5
1973	11.2	10.5	40.3	421.5
1974	9.0	8.2	37.2	304.1
1975	9.5	8.7	43.9	383.9
1976	9.3	8.4	44.8	377.3

NA = Not available.

1/ Estimated

Source: (53 and 56). Underscored numbers in parentheses refer to references cited in the selected bibliography.

Table 2--Barley: Percentage of acreage planted to malting and feed varieties in major producing States, 1970-75

State and type of barley	1970	1971	1972	1973	1974	1975
			Percent			
Minnesota:						
Six-rowed malting	91.0	94.0	97.0	99.0	98.0	98.0
Feed	9.0	6.0	3.0	1.0	2.0	2.0
North Dakota:						
Six-rowed malting	95.6	94.8	95.5	95.4	96.5	97.2
Feed	4.4	5.2	4.5	4.6	3.5	2.8
South Dakota:						
Six-rowed malting	52.8	72.1	58.6	56.6	55.5	57.2
Feed	47.2	27.9	41.4	43.4	44.5	42.8
Montana:						
Two-rowed malting	36.1	50.2	48.4	50.4	50.2	38.4
Feed	63.9	49.8	51.6	49.6	49.8	61.6
Idaho:						
Two-rowed malting	36.0	41.0	48.0	47.0	43.0	45.0
Six-rowed malting	2.0	5.0	3.0	4.0	3.0	5.0
Feed	62.0	54.0	49.0	51.0	46.0	50.0
Washington:						
Two-rowed malting	11.6	13.9	24.0	25.7	24.2	10.8
Six-rowed malting	9.2	10.8	5.3	18.6	4.0	--
Feed	79.2	75.3	70.7	55.7	71.8	89.2
Oregon:						
Two-rowed malting	14.0	13.0	14.0	11.0	15.0	22.0
Six-rowed malting	6.0	4.0	6.0	14.0	11.0	7.0
Feed	80.0	83.0	80.0	75.0	74.0	71.0
California:						
Two-rowed malting	1.6	.7	1.4	1.2	0	.5
Six-rowed malting	6.6	4.3	3.2	2.9	0	.7
Feed	91.8	95.0	95.4	95.9	100.0	98.8

-- = Not applicable.

Source: (24).

Table 3--Barley: Usual planting and harvesting dates in major producing States 1/

State and sowing season	1975 harvested acreage	Usual planting dates	Usual harvesting dates		
			Begin	Most active	End
	Thousands				
Pennsylvania:					
Fall sown	155	Sept. 10 - Oct. 1	June 20	June 25 - July 5	July 10
Spring sown		Apr. 25 - May 25	July 25	Aug. 1 - Aug. 15	Aug. 20
Minnesota	850	Apr. 15 - May 30	July 25	Aug. 1 - Aug. 20	Sept. 10
North Dakota	1,990	Apr. 20 - June 1	Aug. 1	Aug. 10 - Aug. 25	Sept. 5
South Dakota	570	Apr. 5 - May 10	July 15	July 25 - Aug. 10	Aug. 15
Maryland	100	Sept. 15 - Nov. 10	June 10	June 20 - July 10	July 15
Virginia	104	Sept. 5 - Nov. 1	June 1	June 20 - July 1	July 15
Montana	1,300	Apr. 10 - May 30	Aug. 5	Aug. 10 - Aug. 25	Sept. 15
Idaho:					
Fall sown	755	Sept. 1 - Oct. 15	July 15	July 25 - Aug. 20	Sept. 1
Spring sown		Mar. 25 - May 25	July 25	Aug. 5 - Sept. 15	Sept. 30
Wyoming	134	Apr. 5 - May 20	Aug. 1	Aug. 5 - Aug. 20	Sept. 1

--Continued

Table 3--Barley: Usual planting and harvesting dates in major producing States 1/--Continued

State and sowing season	1975 harvested acreage	Usual planting dates	Usual harvesting dates		
			Begin	Most active	End
	Thousands				
Colorado:					
Fall sown	265	Sept. 1 - Oct. 15	June 20	July 1 - July 20	Aug. 5
Spring sown		Mar. 15 - Apr. 30	June 30	July 5 - Sept. 10	Sept. 20
Arizona	115	Oct. 1 - Feb. 15	May 20	May 25 - June 30	July 10
Utah	135	Mar. 20 - Apr. 25	Aug. 1	Aug. 20 - Sept. 1	Sept. 10
Washington:					
Fall sown	400	Sept. 1 - Nov. 10	July 1	July 15 - Aug. 10	Aug. 20
Spring sown		Mar. 10 - April 1	July 5	July 20 - Aug. 15	Sept. 1
Oregon:					
Fall sown	177	Aug. 15 - Feb. 1	July 5	July 15 - Aug. 10	Aug. 10
Spring sown		Feb. 15 - May 15	July 25	Aug. 5 - Aug. 25	Sept. 15
California:					
Fall sown	1,060	Oct. 1 - Apr. 15	May 15	June 1 - July 15	Aug. 15
Spring sown		Mar. 1 - May 1	Aug. 15	Sept. 1 - Sept. 20	Sept. 30

1/ States in which harvested acreage was 100,000 acres or more in 1975.

Source: (69).

Table 4--Barley: Acreage harvested by region and regional proportion of acreage, selected years

Region	1950	1955	1960	1965	1970	1975	1976
				1,000 acres			
North Atlantic	289	337	218	176	206	185	179
East North Central	426	521	267	99	87	93	87
West North Central	5,243	6,776	5,946	3,456	3,152	3,581	3,474
South Atlantic	258	321	333	334	324	325	321
South Central	318	621	1,194	482	832	211	181
Western	4,621	5,897	5,898	4,597	5,124	4,348	4,175
United States	11,155	14,523	13,856	9,144	9,725	8,743	8,417
				Percent			
North Atlantic	2.6	2.3	1.6	1.9	2.1	2.1	2.2
East North Central	3.8	3.6	1.9	1.1	.9	1.1	1.1
West North Central	47.0	46.7	42.9	37.8	32.4	41.0	41.2
South Atlantic	2.3	2.2	2.4	3.6	3.3	3.7	3.8
South Central	2.9	4.3	8.6	5.3	8.6	2.4	2.2
Western	41.4	40.6	42.5	50.3	52.7	49.7	49.5
United States	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: (53 and 66).

Table 5--Area planted to major field crops, 1970-76

Crop	1970	1971	1972	1973	1974	1975	1976
				Million acres			
Feed Grains:							
Corn	66.8	74.1	67.0	71.9	77.8	77.9	84.1
Sorghum	17.0	20.8	17.3	19.2	17.7	18.3	18.6
Oats 1/	24.5	22.0	20.2	19.1	18.0	17.4	17.5
Barley 1/	10.5	11.1	10.6	11.2	9.0	9.5	9.3
Total, feed	118.8	128.0	115.1	121.4	122.5	123.1	129.5
Food Grains:							
Wheat:							
Winter 2/	37.6	38.1	42.2	43.2	52.4	56.2	57.7
Durum	2.2	2.9	2.6	3.0	4.2	4.8	4.7
Other spring	8.9	12.8	10.1	12.8	14.8	14.1	17.8
All wheat	48.7	53.8	54.9	59.0	71.4	75.1	80.2
Rye	4.2	4.8	3.5	3.5	3.2	3.2	3.0
Rice	1.8	1.8	1.8	2.2	2.6	2.8	2.5
Total, food	54.7	60.4	60.2	64.7	77.2	81.1	85.7
Other crops:							
Soybeans	43.1	43.5	46.9	56.7	53.5	54.6	50.3
Cotton	11.9	12.4	14.0	12.5	13.7	9.7	11.6
Hay 3/	61.5	61.4	59.8	62.1	60.6	61.9	62.2
Total, other	116.5	117.3	120.7	131.3	127.8	126.2	124.5
Total	290.0	305.7	296.0	317.4	327.5	330.4	339.7

1/ Includes area planted in preceding fall.
2/ Area planted in preceding fall.
3/ Harvested acres.

Source: (66).

Table 6--Relative value of barley and other common feed materials compared with corn when fed to different kinds of livestock 1/

Item	Dairy cows	Fattening cattle	Wintering beef cattle	Hogs	Fattening lambs	Horses and mules	Poultry	Feed unit value, average United States
				Percent				
Grains:								
Corn	100	100	100	100	100	100	100	100
Oats	90	85	100	90	80	90	90	90
Barley	100	88	100	90	87	95	80	90
Wheat	105	105	--	103	85	95	105	105
Rye	90	95	--	80	85	--	--	85
Sorghum	100	92	100	90	100	95	95	95
Other concentrates:								
Gluten meal	165	225	--	175	200	--	--	165
Gluten feed	115	--	--	--	90	--	--	115
Brewers'dried grains	110	--	--	--	100	90	--	105
Distillers' dried grains (corn)	130	135	--	--	200	--	--	140
Wheat bran	95	--	75	--	90	85	70	90
Wheat middlings	100	--	--	105	--	--	90	100
Oat millfeed	45	35	--	30	35	45	--	40
Corn and cob meal	90	90	--	--	--	--	90	90

Continued--

Table 6--Relative value of barley and other common feed materials compared with corn when fed to different kinds of livestock 1/--Continued

Item	Dairy cows	Fattening cattle	Wintering beef cattle	Hogs	Fattening lambs	Horses and mules	Poultry	Feed unit value, average United States
				Percent				
Hominy feed	100	100	--	95	100	100	100	100
Molasses (cane)	90	85	--	70	85	80	50	80
Dried beet pulp	90	90	--	--	90	--	--	90
Wet beet pulp	10	15	--	--	15	--	--	15
Alfalfa meal	65	--	--	70	--	--	70	70
Soybeans	170	200	--	150	200	125	100	160
Cottonseed	80	140	--	--	--	--	--	120
Cowpeas	--	--	--	--	--	--	--	120
Velvet beans	100	190	--	--	--	--	--	120
Peanuts	--	--	--	100	--	--	--	100

-- = Negligible or not applicable.

1/ In the data shown in the last column, 100 pounds of barley is equivalent in feeding value for mixed livestock to 90 pounds of corn. Feeds are of different values for different classes of livestock, as shown in other columns. These values assume that the feed is fed as part of a properly balanced ration, and that it is fed to livestock of the age to which it is suited.

Source: (55).

Table 7--Barley: Acreage, yield, production, farm disposition, 1950-76

Crop year	Acreage seeded for all purposes 1/	Acreage harvested for grain	Yield per harvested acre	Production	Farm disposition 2/	
					Used on farm	Sold from farm
	1,000 acres		Bushels	- - - Million bushels - - -		
1950	13,010	11,155	27.2	303.8	108.6	195.2
1951	10,790	9,424	27.3	257.2	102.1	155.1
1952	9,190	8,236	27.7	228.2	88.3	139.8
1953	9,615	8,680	28.4	246.7	88.0	158.7
1954	14,740	13,370	28.4	379.3	128.0	251.3
1955	16,293	14,523	27.8	403.1	142.9	260.1
1956	14,732	12,852	29.3	376.7	126.7	250.0
1957	16,398	14,872	29.8	442.8	143.9	298.9
1958	16,150	14,791	32.3	477.4	148.4	329.0
1959	16,766	14,869	28.3	420.2	132.2	288.0
1960	15,527	13,856	31.0	429.0	136.7	292.3
1961	15,623	12,806	30.6	392.4	118.5	273.9
1962	14,380	12,214	35.0	427.7	130.4	297.4
1963	13,452	11,236	35.0	392.8	110.8	282.0
1964	11,652	10,277	37.6	386.1	91.4	294.7
1965	10,123	9,166	42.9	393.1	92.9	300.2
1966	11,184	10,250	38.3	392.1	103.8	288.3
1967	10,077	9,230	40.5	373.7	104.1	269.6
1968	10,486	9,736	43.8	426.2	110.4	315.8
1969	10,291	9,557	44.7	427.1	116.3	310.4
1970	10,490	9,725	42.8	416.1	114.8	301.3
1971	11,115	10,151	45.7	463.6	125.7	337.9
1972	10,639	9,707	43.6	423.5	110.0	313.5
1973	11,229	10,452	40.3	421.5	111.1	310.4
1974	8,994	8,168	37.2	304.1	84.1	220.0
1975	9,536	8,743	43.9	383.9	102.9	281.0
1976	9,296	8,417	44.8	377.3	96.6	280.7

1/ Includes barley sown in the preceding fall.
2/ Disposition of a given year's production regardless of time of actual disposition.

Source: (53 and 56).

Table 8--Barley: Percentage of open market farm sales, by month, marketing years 1966/67 - 1975/76

Month	1966/67	1967/68	1968/69	1969/70	1970/71	1971/72	1972/73	1973/74	1974/75	1975/76
					Percent					
May	0.7	1.1	1.4	1.5	1.3	1.0	1.1	0.7	0.9	0.8
June	11.4	12.0	13.1	9.4	11.3	9.0	10.2	8.7	13.4	10.1
July	10.3	11.2	9.8	8.3	9.1	9.1	7.8	9.1	10.5	9.7
August	16.2	17.5	10.1	11.7	10.8	11.4	10.9	11.9	10.6	10.6
September	11.3	10.3	10.3	9.9	10.4	10.3	10.7	10.2	13.5	11.0
Summer	49.9	52.1	44.7	40.8	42.9	40.8	40.7	40.8	48.9	42.2
October	8.0	8.2	9.3	8.8	8.0	7.7	7.0	7.1	9.7	8.4
November	6.4	6.2	6.3	7.3	7.3	6.9	6.5	6.1	6.0	7.2
December	6.8	5.7	5.9	7.0	7.5	6.5	5.7	6.6	6.6	7.1
Fall	21.2	20.1	21.5	23.1	22.8	21.1	19.2	19.8	22.3	22.7
January	7.4	7.4	7.9	9.0	10.1	8.6	9.8	9.0	7.9	8.5
February	4.7	5.7	6.6	7.1	7.2	7.1	7.4	7.4	5.4	6.8
March	5.5	4.9	6.3	6.8	5.8	7.1	6.2	6.5	4.6	6.1
Winter	17.6	18.0	20.8	22.9	23.1	22.8	23.4	22.9	17.9	21.4
April	4.6	3.9	5.0	5.2	4.2	5.4	5.0	5.0	4.0	4.8
May	3.7	3.5	4.6	4.8	4.2	5.2	6.3	5.8	4.1	5.2
June	3.0	2.4	3.4	3.2	2.8	4.7	5.4	5.9	2.8	3.7
Spring	11.3	9.8	13.0	13.2	11.2	15.3	16.7	16.7	10.9	13.7
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: (67).

Table 9--Barley: Supply available by marketing year, 1950-76

Year beginning June 1	Beginning inventory	Production	Imports	Total
		1,000 bushels		
1950	95	304	14	412
1951	114	257	13	384
1952	90	228	24	342
1953	66	247	37	350
1954	88	379	26	494
1955	154	403	26	583
1956	147	377	28	552
1957	148	443	24	615
1958	197	477	15	689
1959	229	420	18	667
1960	191	429	15	634
1961	178	392	20	590
1962	149	428	6	582
1963	171	393	13	576
1964	162	386	12	560
1965	133	393	8	534
1966	133	392	7	532
1967	148	374	9	531
1968	161	426	10	597
1969	225	427	13	665
1970	269	416	10	695
1971	184	464	12	660
1972	208	423	17	648
1973	192	422	9	623
1974	146	304	20	470
1975	92	384	16	492
1976	129	377	11	517

Source: (53 and 56).

Table 10--Quarterly imports of barley and barley malt, marketing years 1950/51 - 1975/76

Marketing year	June-Sept.	Oct.-Dec.	Jan.-Mar.	Apr.-May	Total 1/
			Million bushels		
1950/51	5	3	3	3	14
1951/52	3	6	2	2	13
1952/53	5	10	3	6	24
1953/54	13	15	2	7	37
1954/55	11	9	2	3	26
1955/56	3	13	3	7	26
1956/57	12	9	4	3	28
1957/58	7	9	3	5	24
1958/59	5	6	2	2	15
1959/60	5	8	3	2	18
1960/61	3	7	1	3	15
1961/62	7	8	3	2	20
1962/63	2	2	1	1	6
1963/64	2	5	2	3	13
1964/65	4	6	1	1	12
1965/66	2	3	1	1	8
1966/67	1	4	2/	1	7
1967/68	3	4	1	1	9
1968/69	2	5	1	2	10
1969/70	3	5	1	4	13
1970/71	6	2	2/	1	10
1971/72	4	5	1	3	12
1972/73	7	7	2/	3	17
1973/74	3	4	1	1	9
1974/75	8	6	3	4	20
1975/76 3/	7	5	3	2	16

1/ Data may not add to totals due to independent rounding.
2/ Less than 500,000 bushels.
3/ Preliminary.

Source: (56).

Table 11--Barley: Quarterly inventories, marketing years 1950/51 - 1975/76

Marketing year	July 1		October 1		January 1		April 1	
	Farm	Off-farm	Farm	Off-farm	Farm	Off-farm	Farm	Off-farm
	Million bushels							
1950/51	30	50	186	121	140	104	89	75
1951/52	40	54	172	97	124	79	78	54
1952/53	38	35	132	89	99	65	57	41
1953/54	25	26	151	87	109	70	76	48
1954/55	35	36	229	129	167	118	118	89
1955/56	44	87	261	146	192	115	117	88
1956/57	39	78	228	164	162	130	106	97
1957/58	42	85	279	190	212	149	151	113
1958/59	63	106	314	190	231	165	155	137
1959/60	66	130	266	195	197	163	120	125
1960/61	56	111	283	191	205	152	128	118
1961/62	65	87	242	191	180	154	98	118
1962/63	48	75	276	172	211	131	129	103
1963/64	67	79	257	163	195	130	127	102
1964/65	59	73	247	149	181	120	101	98
1965/66	38	61	244	143	186	116	99	94
1966/67	46	59	248	140	179	115	115	92
1967/68	57	65	233	149	185	119	129	89
1968/69	72	66	303	151	248	124	184	99
1969/70	115	85	314	191	265	162	199	134
1970/71	137	100	305	184	239	142	142	115
1971/72	81	75	318	171	256	137	165	118
1972/73	107	68	322	132	246	116	161	97
1973/74	89	74	284	138	209	113	122	94
1974/75	55	64	182	126	127	102	62	72
1975/76	30	46	223	126	162	114	98	86

Source: (68).

Table 12--Barley: Annual receipts at prominent western grain centers, selected years

Terminal market	1950	1960	1970	1973	1974	1975	1976
			Million bushels				
Chicago	14.6	11.2	1.8	0.1	0.1	0.2	--
Duluth	9.4	32.1	51.7	61.9	31.8	19.8	42.0
Enid	--	3.1	2.0	--	--	--	--
Hutchinson	--	.3	--	--	--	--	--
Kansas City	1.1	2.0	.7	--	--	--	--
Milwaukee	36.6	25.1	24.6	24.3	23.6	16.8	19.4
Minneapolis 1/	62.3	88.8	2/109.4	32.5	45.1	37.5	42.4
Omaha	.7	.2	--	--	--	--	--
Peoria	.8	.2	--	--	--	--	--
Salina	--	.2	--	--	--	--	--
Sioux City	--	.2	--	--	--	--	--
St. Joseph	.4	.3	--	--	--	--	--
St. Louis	1.5	.1	--	--	--	--	--
Toledo	.1	2.1	--	--	--	--	--
Wichita	--	.3	.3	.2	.3	.2	.2
Total	127.5	166.2	190.5	119.0	100.9	74.5	108.2

-- = Negligible or not applicable.

1/ Data for 1973-1976 represent actual receipts. For earlier years, data include inspected receipts.

2/ Receipts were abnormally high in 1970.

Source: (5).

Table 13--Barley: Designated grades of inspected receipts, 2 months following harvest, 1970-75

Class or subclass and special grades	Unit	1970	1971	1972	1973	1974	1975
Western Barley:							
Receipts	Number	NA	13,758	8,688	12,162	8,904	9,246
Grades:							
U.S. No. 1	Percent	66.7	66.2	64.8	67.5	65.0	73.8
U.S. No. 2	Do.	22.7	22.2	23.7	21.0	23.7	15.1
U.S. No. 3	Do.	5.9	5.6	5.6	5.2	6.0	4.2
U.S. No. 4	Do.	2.0	2.9	2.9	2.0	1.9	1.5
U.S. No. 5	Do.	1.0	1.6	1.4	1.0	1.3	1.0
Sample grade	Do.	1.7	1.4	1.7	3.3	2.1	4.4
Special grades:							
Western barley	Percent	73.2	71.5	59.9	64.2	58.8	73.0
Two-rowed	Do.	14.7	18.8	20.1	30.0	25.1	15.1
Choice malting	Do.	4.8	2.1	5.3	1.7	3.9	5.7
Malting	Do.	7.3	7.6	14.6	4.1	12.2	6.2
Tough	Do.	1.7	.9	3.9	6.7	1.1	6.3
Weevily	Do.	.1	.1	.1	.1	.3	.1
Barley:							
Receipts	Number	NA	5,226	5,369	9,744	4,707	5,106
Grades:							
U.S. No. 1	Percent	47.3	62.7	60.9	55.5	53.8	43.8
U.S. No. 2	Do.	16.8	13.7	16.6	20.6	17.6	15.6
U.S. No. 3	Do.	24.4	10.6	11.1	9.4	12.0	12.6
U.S. No. 4	Do.	7.1	3.3	5.6	3.0	4.9	10.0
U.S. No. 5	Do.	1.9	6.4	2.4	1.9	2.1	5.5
Sample grade	Do.	2.6	3.4	3.4	9.6	9.6	12.7
Special grades:							
Two-rowed	Percent	2.5	.5	25.6	11.8	26.9	30.4
Tough	Do.	2.6	2.6	2.8	1.7	4.4	4.2
Weevily	Do.	8.4	29.3	1.6	3.7	1.5	2.0
Malting Barley:							
Receipts	Number	NA	9,590	10,274	9,978	9,494	11,223
Grades:							
U.S. No. 1	Percent	28.0	21.1	19.0	17.5	13.4	21.6
U.S. No. 2	Do.	41.1	43.0	46.7	47.9	49.4	50.5
U.S. No. 3	Do.	30.9	35.8	34.3	34.7	37.2	27.9
Subclasses:							
Malting	Percent	75.0	82.3	84.2	85.6	89.2	85.6
Choice malting	Do.	9.2	6.0	1.7	3.3	.9	3.7
Two-rowed malting	Do.	11.0	4.7	5.7	3.1	.7	4.3
Blue malting	Do.	4.8	6.9	8.4	8.0	9.3	6.4
Tough	Do.	.9	.4	.6	.3	1.1	.7

NA = Not available.

Source: (47).

Table 14--Barley: Disappearance by use, 1950-76

Year beginning June 1	Domestic						Exports			Total disappearance	Malt uses as a percentage of total disappearance 5/
	Used as malt for:			Seed 3/	Livestock feed 4/	Total	Grain	Malt	Total		
	Beer	Alcohol and other alcoholic beverages 1/	Food uses 2/								
	Million bushels										Percent
1950	79	12	6	18	147	261	33	4	37	299	33.8
1951	79	4	6	15	157	261	28	5	33	294	32.0
1952	78	--	6	16	140	239	32	5	37	276	32.2
1953	80	1	6	24	134	245	12	5	17	262	35.1
1954	77	2	5	26	188	298	37	4	41	340	25.9
1955	78	4	5	24	228	339	93	4	97	437	20.8
1956	78	3	5	26	223	335	64	5	69	404	22.5
1957	75	2	5	26	225	333	81	5	86	419	20.8
1958	77	4	5	26	234	346	110	4	114	460	19.6
1959	79	5	5	24	241	354	118	4	122	476	19.5
1960	79	3	6	25	254	367	86	3	89	456	20.0
1961	80	4	6	23	250	363	76	2	78	442	20.8
1962	81	3	6	21	228	339	70	3	73	411	22.6
1963	84	4	7	18	233	346	65	3	68	414	23.7
1964	88	4	7	16	252	367	57	2	59	426	23.7
1965	90	6	7	17	203	323	76	2	78	401	26.2
1966	96	5	7	16	200	324	58	2	60	384	28.6

Continued--

Table 14--Barley: Disappearance by use, 1950-76--Continued

Year beginning June 1	Domestic						Exports			Total disappearance	Malt uses as a percentage of total disappearance 5/
	Used as malt for:			Seed 3/	Livestock feed 4/	Total	Grain	Malt	Total		
	Beer	Alcohol and other alcoholic beverages 1/	Food uses 2/								
	Million bushels										Percent
1967	97	6	8	17	206	334	34	2	36	370	30.5
1968	102	5	8	16	229	360	10	2	12	372	31.5
1969	107	5	8	16	250	386	8	2	10	369	33.1
1970	108	5	9	18	286	426	82	2	84	510	24.3
1971	113	4	9	17	268	411	38	3	41	452	28.5
1972	116	4	9	18	240	387	66	4	70	457	29.1
1973	120	4	9	15	235	383	90	3	93	476	28.6
1974	124	2	9	16	186	336	39	3	42	378	36.5
1975	122	3	9	15	191	340	23	1	24	363	37.2
1976	128	3	9	17	168	324	64	2	66	390	36.2

-- = Negligible.
1/ Compiled from reports of Internal Revenue Service; includes small quantities of barley grain.
2/ Malt used for food, pearl barley, barley flour, and breakfast cereal.
3/ Based on acreage seeded following crop.
4/ Residual; includes other minor uses and waste.
5/ Includes both domestic and export uses.

Source: (53) and ESCS revisions.

Table 15--Agricultural products used and beer produced by brewing industry, 1970-76

Product	1970	1971	1972	1973	1974	1975	1976
				Million pounds			
Grain and grain products:							
Malt	3,664.6	3,777.2	3,856.5	4,046.0	4,258.6	4,204.0	4,194.3
Corn	1,449.5	1,494.1	1,476.6	1,509.9	1,554.4	1,648.6	1,663.5
Rice	498.7	511.2	555.8	579.1	556.5	666.2	675.5
Wheat	.2	.2	.4	--	--	--	--
Barley	2.1	--	.1	--	--	7.6	21.2
Sorghum	1.7	1.5	.3	--	--	--	--
Rye	--	--	--	--	--	--	--
Total grain	5,616.8	5,784.2	5,889.7	6,135.1	6,369.6	6,526.4	6,554.4
Other agricultural products:							
Soybeans	1.9	2.3	1.9	1.8	1.5	1.8	1.9
Sugar and sirup	200.5	199.4	243.3	277.3	345.3	408.3	376.6
Hops	27.0	24.9	23.7	24.2	27.3	29.7	23.3
Hop extract	3.4	2.8	10.8	11.1	9.8	4.9	4.9
Other	--	1.3	--	--	--	--	--
Total other	232.8	230.7	279.7	314.4	383.9	444.7	406.7
Total	5,849.6	6,014.9	6,169.4	6,449.5	6,753.5	6,971.1	6,961.1
				Million barrels			
Beer produced	133.1	137.4	141.3	148.6	156.2	160.6	163.8

-- = Negligible or not applicable.

Source: (37) and U.S. Brewing Association.

Table 16--Production and taxpaid withdrawals of malt beverages, and Barley malt used by the brewing industry, 1950-74

Year beginning July 1	Production of malt beverages	Total barley malt used	Barley malt used per barrel 1/	Taxpaid withdrawals	
				Total	Per capita
	1,000 barrels 1/	Million pounds	Pounds	1,000 barrels 1/	Gallons
1950	88,976	2,678	30.1	83,246	16.8
1951	89,601	2,656	29.6	84,294	16.8
1952	90,434	2,666	29.5	84,559	16.6
1953	92,561	2,728	29.5	85,747	16.5
1954	89,791	2,627	29.3	84,457	15.9
1955	90,698	2,651	29.2	85,357	15.9
1956	89,882	2,618	29.1	84,321	15.3
1957	89,011	2,578	29.0	83,949	15.0
1958	90,974	2,613	28.7	85,638	15.0
1959	94,548	2,697	28.5	88,929	15.4
1960	93,496	2,657	28.4	87,926	14.9
1961	96,418	2,715	28.2	90,693	15.1
1962	97,961	2,745	28.0	91,494	15.0
1963	103,018	2,885	28.0	96,247	15.6
1964	108,015	3,016	27.9	100,307	16.0
1965	109,736	3,072	27.5	101,510	16.1
1966	116,564	3,271	28.1	107,301	16.8
1967	117,524	3,310	28.2	107,470	16.7
1968	122,657	3,432	28.0	111,867	17.2
1969	134,654	3,721	27.6	122,550	18.7
1970	134,092	3,679	27.4	123,850	18.6
1971	140,372	3,854	27.5	130,741	19.5
1972	143,014	3,898	27.3	133,960	19.8
1973	153,053	4,168	27.2	142,312	20.9
1974	157,870	4,225	26.8	146,853	21.4

1/ One barrel equals 31 gallons.

Source: (3 and 39).

Table 17--Beer sales of the 10 leading brewers in 1976, and comparisons in selected years

Brewer	1957	1970	1975	1976 1/
		1,000 barrels		
Anheuser-Busch	6,115	22,400	35,200	29,000
Joseph Schlitz Brewing	6,023	15,000	23,279	24,162
Miller Brewing	2,332	5,253	12,862	18,403
Pabst Brewing	2,548	10,600	15,669	17,087
Adolph Coors	1,146	7,250	11,950	13,600
Olympia Brewing	--	--	5,777	6,367
The Stroh Brewery	2,583	3,250	5,133	5,765
The F & M Schaefer Brewing	2,940	5,800	5,881	5,300
F. Heileman Brewing	--	--	4,535	5,210
Carling-National Breweries	3,150	4,950	4,850	4,312
Industry total (Mil. barrels)	84	123	147	150
Market share of top two	14.4	30.9	40.0	35.5
Market share of top five	28.2	50.5	67.0	68.1
Market share of top ten	45.1	69.9	84.8	86.1

-- = Negligible or not applicable.
1/ Preliminary.

Source: (4), Jan. 20, 1977, and (37), Feb. 1972.

Table 18--Number of breweries in selected years, and 1974 production of malt beverages by State and census region

Region and State	Breweries in operation				1974 malt beverage production	
	1950	1960	1970	1974	Total	Per plant
	Number				1,000 barrels	
North Atlantic:						
New England	18	9	6	6	5,411	902
New York	36	19	13	5	7,732	1,546
New Jersey	11	8	6	5	8,357	1,671
Pennsylvania	57	26	20	18	7,499	417
Total	122	62	45	34	28,999	853
North Central:						
Ohio	35	13	8	4	6,989	1,747
Indiana	12	4	4	2	1,809	904
Illinois	31	15	6	3	3,939	1,313
Michigan	21	10	5	3	5,684	1,895
Wisconsin	52	33	22	9	19,691	2,188
Minnesota	18	13	7	5	4,228	846
Iowa	3	2	1	1	1/ 47	47
Missouri	10	6	5	3	12,141	4,047
North Dakota	--	--	1	--	--	--
Nebraska	4	3	2	1	633	633
Total	186	99	61	31	55,161	1,779

Continued--

Table 18--Number of breweries in selected years, and 1974 production of malt beverages by State and census region --Continued

Region and State	Breweries in operation				1974 malt beverage production	
	1950	1960	1970	1974	Total	Per plant
	Number				1,000 barrels	
South Atlantic:						
Maryland	7	6	5	4	3,419	855
Virginia	4	2	1	2	1/ 3,006	1,503
North Carolina	1	--	1	1	1/ 4,898	4,898
Georgia	1	1	1	2	1/ 3,340	1,670
Florida	6	7	4	6	6,409	1,068
Other States	4	1	1	--	--	--
Total	23	17	13	15	21,072	1,405
South Central:						
Kentucky	6	5	2	2	1/ 2,338	1,169
Tennessee	2	--	--	1	1/ 4,898	4,898
Louisiana	5	4	3	3	1,598	533
Oklahoma	1	1	1	--	--	--
Texas	7	6	7	7	10,396	1,485
Total	21	16	13	13	19,230	1,479

Continued--

Table 18--Number of breweries in selected years, and 1974 production of malt beverages by State and census region --Continued

Region and State	Breweries in operation				1974 malt beverage production	
	1950	1960	1970	1974	Total	Per plant
	Number				1,000 barrels	
Western:						
Colorado	4	3	3	2	12,434	6,217
Arizona	1	1	1	1	1/ 274	274
Washington	10	7	4	4	6,177	1,544
Oregon	2	1	1	1	1/ 625	625
California	17	13	11	8	8,807	1,101
Hawaii	4	4	2	2	1/ 274	137
Other States	17	6	--	--	--	--
Total	55	35	22	18	28,591	1,588
United States	407	229	154	111	153,053	1,379

-- = Negligible or not applicable.
1/ Allocated from grouped data on basis of 1973 estimated capacity.

Source: (3).

Table 19--Percentage of national sales and total sales by the 10 leading beer sellers in 1957 and 1970

Leading sellers in 1957, percentage of national beer sales, and total barrel sales	Leading sellers in 1970, percentage of national beer sales, and total barrel sales
(1) Anheuser-Busch - - - - - - - 7.25 percent 6,115,000 barrels	(1) Anheuser-Busch - - - - - - - 18.5 percent 22,400,000 barrels
(2) Schlitz - - - - - - - - - - - 7.15 percent 6,023,000 barrels	(2) Schlitz - - - - - - - - - - - 12.4 percent 15,000,000 barrels
(3) Falstaff - - - - - - - - - - - 5.10 percent 4,300,000 barrels	(3) Pabst - - - - - - - - - - - - 8.8 percent 10,600,000 barrels
(4) Ballantine - - - - - - - - - - 4.72 percent 3,981,000 barrels (By 1970, had dropped to 17th with 1.6 percent of national sales and total sales of 1,900,000 barrels.)	(4) Coors - - - - - - - - - - - - 6.0 percent 7,250,000 barrels (In 1957, was 19th with 1.36 percent of national sales and total sales of 1,146,000 barrels.)
(5) Hamm - - - - - - - - - - - - 4.01 percent 3,376,000 barrels	(5) Schaefer - - - - - - - - - - 4.8 percent 5,800,000 barrels
(6) Carling - - - - - - - - - - - 3.74 percent 3,150,000 barrels	(6) Falstaff - - - - - - - - - - - 4.4 percent 5,270,000 barrels (Includes sales of Narragansett which had 1.05 percent of national sales and total sales of 881,000 barrels in 1957.)

Continued--

Table 19--Percentage of national sales and total sales by the 10 leading beer sellers in 1957 and 1970--Continued

Leading sellers in 1957, percentage of national beer sales, and total barrel sales	Leading sellers in 1970, percentage of national beer sales, and total barrel sales
(7) Rheingold (Liebamm) - - - - 3.52 percent 2,966,000 barrels (By 1970, had dropped to 11th with 2.9 percent of national sales and total sales of 3,630,000 barrels. In 1965, Rheingold acquired Ruppert, which ranked 14th in 1957.)	(7) Miller - - - - - - - - - - - - 4.3 percent 5,253,000 barrels (In 1957, ranked 11th with 2.75 percent of national sales and total sales of 2,322,000 barrels.)
(8) Schaefer - - - - - - - - - - - 3.29 percent 2,940,000 barrels	(8) Carling - - - - - - - - - - - 4.1 percent 4,950,000 barrels
(9) Stroh - - - - - - - - - - - - 3.06 percent 2,583,000 barrels (By 1970, had dropped to 13th with 2.7 percent of national sales and total sales of 3,250,000 barrels.)	(9) Hamm - - - - - - - - - - - - - 4.5 percent 4,200,000 barrels
(10) Pabst - - - - - - - - - - - - 3.02 percent 2,548,000 barrels	(10) Associated - - - - - - - - 3.1 percent 3,750,000 barrels (Includes Drewrys and Sterling which were 16th and 37th, respectively, in 1957.)

Source: (37), Feb. 1972, p. 53.

Table 20--Principal malting firms, industry rank, and capacity, 1953

Firm	Industry rank	Active plants	Malt capacity	Proportion of capacity
		Number	Mil. bu.	Percent
Froedtert Grain and Malting Co., Milwaukee	1	4	18.0	15.3
Fleishmann Malting Corporation, Chicago	2	5	16.0	13.6
Rahr Malting Company, Milwaukee	3	4	16.0	13.6
Kurth Malting Company, Milwaukee	4	2	9.0	7.6
Ladish Malting Company, Milwaukee	5	1	9.0	7.6
Albert Schwill and Company, Chicago	6	1	4.5	3.8
Northwestern Malt and Grain Company, Chicago	7	1	4.0	3.4
Wisconsin Malting Company, Milwaukee	8	1	4.0	3.4
Schlitz Brewing Company, Milwaukee	1/ 9B	1	3.9	3.3
Pabst Brewing Company, Milwaukee	10B	2	3.8	3.3
Meyer Malt and Grain Company, Buffalo	11	1	3.0	2.5

Continued--

Table 20--Principal malting firms, industry rank, and capacity, 1953--Continued

Firm	Industry rank	Active plants	Malt capacity	Proportion of capacity
		Number	Mil. bu.	Percent
Zinn Malting Company, Milwaukee	12	1	2.8	2.4
Columbia Malting Company, Chicago	13	1	2.6	2.2
Anheuser-Busch, Incorporated, St. Louis	14B	1	2.5	2.1
Schreier Malting Company, Sheboygan	15	1	2.1	1.8
H.W. Rickel, Detroit	16	1	2.0	1.7
Perot Sons Malting Company, Phildaelphia	17	1	2.0	1.7
Miller Malting Company, Los Angeles	18	1	2.0	1.7
Thos. Hamm Brewing Company, Minneapolis	19B	1	1.2	1.0
Riebs Company, Milwaukee	20	1	.9	.8
20 largest firms		32	102.3	92.9
10 small brewer maltsters		10	2.4	2.0
14 small maltsters		14	6.0	5.1
Malting Industry Total (44 firms)		56	117.7	100.0

1/ B = brewer maltsters.

Source: (9).

Table 21--Barley and barley products used by major industries, selected years

Industry	Unit	1947	1958	1967	1972
Flour and other grain mill products:					
Barley	Mil. bu.	NA	4.3	2.8	3.0
Prepared feeds for animals and food:					
Barley	Mil. bu.	30.6	36.4	32.2	47.5
Brewers' and distillers' grains	1,000 tons	462.0	360.3	418.3	533.9
Cereal preparations:					
Barley	Mil. bu.	NA	1.3	1.6	1.1
Malt liquors:					
Barley	Mil. bu.	NA	NA	2.9	NA
Malt	1,000 tons	NA	1,407.1	1,551.8	1,742.4
Malt:					
Barley	Mil. bu.	NA	78.8	93.6	99.1
Malt	1,000 cwt	NA	NA	490.9	477.9
Distilled liquor, except brandy:					
Malt	1,000 cwt	NA	1,953.0	2,520.8	1,329.7

NA = Not available.

Source: (71).

Table 22--Changing characteristics of the malt industry, SIC 2083, selected census years

Item	Unit	1947	1958	1967	1972
Companies	No.	41	32	32	NA
Total establishments	do.	53	46	43	40
With 20 or more employees	do.	36	34	30	26
Total employees	Thous.	2.5	2.4	2.0	1.7
Payroll	Mil. dol.	9.5	16.3	17.1	20.0
Production workers	Thous.	2.0	1.8	1.5	1.3
Man hours	Mil.	4.5	3.6	3.1	2.5
Wages	Mil. dol.	6.9	10.9	12.7	14.8
Total cost of materials	do.	203.0	138.0	168.7	168.5
Barley	do.	NA	116.1	145.4	143.8
Malt	do.	NA	NA	2.7	2.7
Value added by manufacturer	do.	53.9	55.1	47.5	55.0
Value of shipments	do.	256.2	195.3	216.5	226.3
Capital expenditures (new)	do.	6.9	3.1	7.1	7.9
Census specialization ratio		100	100	97	97
Census coverage ratio		100	95	100	99
Concentration ratio:					
4 largest companies		49	50	39	NA
8 largest companies		69	70	62	NA

NA = Not available.

Source: (71).

Table 23--Changing characteristics of the prepared animal feeds industry, SIC 2042, selected census years 1/

Item	Unit	1947	1958	1967	1972
Companies	No.	2,363	2,016	1,835	NA
Total establishments	do.	2,689	2,379	2,355	2,341
With 20 or more employees	do.	670	715	721	765
Total employees	Thous.	55.3	57.3	53.3	58.3
Payroll	Mil. dol.	143.3	252.3	325.9	475.6
Production workers	Thous.	40.3	38.0	34.6	38.7
Man hours	Mil.	92.8	81.4	75.3	84.6
Wages	Mil. dol.	93.6	151.8	187.1	284.9
Total cost of materials	do.	1,736.0	2,444.8	3,579.5	4,743.3
Barley	do.	48.5	39.0	38.6	61.1
Spent grains from brewers and distillers	do.	29.6	19.8	25.5	34.9
Value added by manufacturer	do.	394.2	798.9	1,226.8	1,714.3
Value of shipments	do.	2,130.3	3,238.4	4,796.9	6,439.0
Capital expenditures (new)	do.	34.8	54.9	75.6	141.3
Census specialization ratio	do.	95	97	97	95
Census coverage ratio	do.	89	91	94	94
Concentration ratio:					
4 largest companies		19	22	23	NA
8 largest companies		27	30	31	NA

NA = Not available.

1/ In 1972, this industry was divided into two SIC's: 2047--Dog, cat, and other pet food, and 2048--prepared feeds not elsewhere classified.

Source: (71).

Table 24--Changing characteristics of the cereal industry, SIC 2043, selected census years

Item	Unit	1947	1958	1967	1972
Companies	No.	25	23	30	NA
Total establishments	do.	64	43	45	47
With 20 or more employees	do.	30	25	28	26
Total employees	Thous.	11.3	10.9	12.2	12.9
Payroll	Mil. dol.	30.7	61.9	93.8	142.9
Production workers	Thous.	9.5	8.5	10.1	10.7
Man hours	Mil.	19.5	16.8	20.2	21.6
Wages	Mil. dol.	25.1	44.1	71.9	111.6
Total cost of materials	do.	154.5	202.0	322.7	439.1
Barley	do.	NA	1.5	2.2	1.6
Value added by manufacturer	do.	130.2	243.1	473.3	688.4
Value of shipments	do.	284.7	444.1	793.0	1,125.5
Capital expenditures (new)	do.	3.8	7.5	18.4	24.9
Census specialization ratio		68	80	81	77
Census coverage ratio		87	81	82	84
Concentration ratio:					
4 largest companies		79	83	88	NA
8 largest companies		91	95	97	NA

NA = Not available.

Source: (71).

Table 25--Changing characteristics of the distilled liquor industry, SIC 2085, selected census years

Item	Unit	1947	1958	1967	1972
Companies	No.	144	88	70	NA
Total establishments	do.	226	122	112	121
With 20 or more employees	do.	169	91	95	96
Total employees	Thous.	30.4	20.5	19.4	18.4
Payroll	Mil. dol.	80.5	102.6	141.6	183.1
Production workers	Thous.	25.7	16.6	15.6	14.5
Man hours	Mil.	52.0	32.2	31.9	28.6
Wages	Mil. dol.	61.8	73.9	104.0	132.5
Total cost of materials	do.	397.9	482.8	639.3	780.4
Malt	do.	NA	9.8	13.1	7.3
Value added by manufacturer	do.	472.4	444.8	736.7	1,023.9
Value of shipments	do.	870.2	928.0	1,364.2	1,797.9
Capital expenditures (new)	do.	22.9	9.9	27.0	32.8
Census specialization ratio		99	100	98	98
Census coverage ratio		99	98	98	99
Concentration ratio:					
4 largest companies		75	60	54	NA
8 largest companies		86	77	71	NA

NA = Not available.

Source: (71).

Table 26--Changing characteristics of the flour and other grain mill products, SIC 2041, selected census years

Item	Unit	1947	1958	1967	1972
Companies	No.	1,017	703	438	NA
Total establishments	do.	1,243	814	541	457
With 20 or more employees	do.	383	250	213	181
Total employees	Thous.	39.5	28.2	20.5	16.1
Payroll	Mil. dol.	118.9	140.1	142.9	152.8
Production workers	Thous.	30.7	20.5	14.8	11.9
Man hours	Mil.	74.4	44.1	33.2	26.9
Wages	Mil. dol.	85.7	96.2	95.5	108.1
Total costs of materials	do.	2,101.1	1,653.8	1,966.0	1,885.2
Barley	do.	NA	4.7	3.3	3.8
Value added by manufacturer	do.	410.5	393.1	491.3	509.8
Value of shipments	do.	2,511.5	2,086.7	2,457.4	2,380.0
Capital expenditures (new)	do.	27.8	22.1	26.3	30.0
Census specialization ratio		92	93	93	97
Census coverage ratio		92	85	78	74
Concentration ratio:					
4 largest companies		29	38	30	NA
8 largest companies		41	51	46	NA

NA = Not available.

Source: (71).

Table 27--Changing characteristics of the malt liquor industry, SIC 2082, selected census years

Item	Unit	1947	1958	1967	1972
Companies	No.	404	211	125	NA
Total establishments	do.	440	258	185	167
With 20 or more employees	do.	393	224	150	130
Total employees	Thous.	82.5	71.5	59.6	51.5
Payroll	Mil. dol.	292.4	442.3	519.7	652.8
Production workers	Thous.	63.7	47.8	40.0	33.8
Man hours	Mil.	142.0	91.5	76.8	66.9
Wages	Mil. dol.	210.2	279.6	331.4	408.7
Total cost of materials	do.	508.9	869.4	1,383.6	2,066.5
Barley	do.	NA	NA	5.6	NA
Malt	do.	NA	165.8	183.9	204.8
Value added by manufacturer	do.	807.2	1,114.6	1,545.7	1,993.6
Value of shipments	do.	1,316.1	1,982.7	2,929.7	4,054.4
Capital expenditures (new)	do.	110.9	62.4	140.4	155.6
Census specialization ratio		100	100	100	100
Census coverage ratio		99	100	100	100
Concentration ratio:					
4 largest companies		21	28	40	NA
8 largest companies		30	44	59	NA

NA = Not available.

Source: (71).

Table 28--Barley: Average prices, selected markets, and grades, 1950-76

Year beginning August 1	Minneapolis		Chicago	Kansas City	Los Angeles	Winnipeg
	No. 2 Malting 1/	No. 3 1/	Feed 1/	No. 3 1/	No. 2 Western 2/	No. 3 Western 3/
	Dollars per bushel					
1950	1.54	1.46	1.30	1.37	1.48	1.37
1951	1.50	1.37	1.33	1.38	1.71	1.29
1952	1.53	1.52	1.32	1.36	1.58	1.35
1953	1.50	1.40	1.13	1.17	1.33	1.07
1954	1.41	1.32	1.16	1.20	1.25	1.20
1955	1.26	1.15	1.00	1.04	1.18	1.09
1956	1.26	1.20	1.14	1.15	1.26	1.06
1957	1.24	1.17	1.18	.94	1.13	.98
1958	1.19	1.15	1.02	1.02	1.21	1.02
1959	1.16	1.09	.98	.93	1.17	1.02
1960	1.16	1.07	.92	.93	1.21	1.02
1961	1.41	1.33	1.11	1.08	1.24	1.29
1962	1.18	1.11	1.04	1.08	1.26	1.16
1963	1.18	1.09	.99	1.04	1.28	1.07
1964	1.27	1.20	1.02	1.06	1.31	1.17
1965	1.32	1.32	1.14	1.13	1.34	1.20
1966	1.35	1.33	1.17	1.15	1.34	1.25
1967	1.24	1.23	1.01	1.08	1.21	1.13
1968	1.15	1.16	.78	.95	1.32	1.02
1969	1.08	1.08	.83	.92	1.28	.96
1970	1.23	1.22	1.05	1.10	1.42	1.20
1971	1.16	1.16	.96	1.07	1.49	1.05
1972	1.43	1.17	1.11	1.36	1.76	1.52
1973	2.67	2.03	1.85	4/	2.79	2.62
1974	4.16	2.58	1.98	4/	3.13	3.22
1975	3.52	2.38	1.98	4/	2.81	3.15
1976	3.13	2.34	NA	4/	2.61	NA

NA = Not available.
1/ Average of prices at close of each trading day.
2/ Average of prices on one day each week.
3/ Average spot prices.
4/ No sales reported.

Source: (53) and unpublished ESCS data.

Table 29--Barley: Farm and terminal market prices, 1900-76

Year 1/	Season average price received by farmers	Terminal price of feed barley 2/	Difference between farm and feed barley prices	Terminal price of malt barley	Difference between farm and malt barley prices
			Dollars per bushel		
1900	0.41	NA	NA	0.56	0.15
1901	.45	NA	NA	.64	.19
1902	.45	NA	NA	.56	.11
1903	.45	NA	NA	.56	.11
1904	.41	NA	NA	.49	.08
1905	.39	NA	NA	.50	.11
1906	.42	NA	NA	.61	.19
1907	.66	NA	NA	.84	.18
1908	.57	NA	NA	.67	.10
1909	.56	NA	NA	.54	-.02
1910	.61	NA	NA	.74	.13
1911	.82	NA	NA	.92	.10
1912	.51	NA	NA	.48	-.03
1913	.52	NA	NA	.51	-.01
1914	.54	NA	NA	.65	.11
1915	.52	NA	NA	.63	.11
1916	.80	NA	NA	1.17	.37
1917	1.23	NA	NA	1.49	.26
1918	.95	NA	NA	1.00	.05
1919	1.24	NA	NA	1.43	.19
1920	.84	NA	NA	.74	-.10
1921	.48	NA	NA	.55	.07
1922	.50	NA	NA	.58	.08
1923	.55	NA	NA	.63	.08
1924	.74	NA	NA	.84	.10
1925	.61	NA	NA	.67	.06
1926	.58	NA	NA	.71	.13
1927	.69	.91	.22	.84	.15
1928	.57	.60	.03	.65	.08
1929	.54	.56	.02	3/.59	.05

Footnotes at end of table

Continued--

Table 29--Barley: Farm and terminal market prices, 1900-76--Continued

Year 1/	Season average price received by farmers	Terminal price of feed barley 2/	Difference between farm and feed barley prices	Terminal price of malt barley	Difference between farm and malt barley prices
			Dollars per bushel		
1930	0.40	0.46	0.06	0.48	0.08
1931	.33	.46	.13	.48	.15
1932	.22	.34	.12	.39	.17
1933	.44	.65	.21	.70	.26
1934	.69	.94	.25	1.05	.36
1935	.38	.59	.21	.68	.30
1936	.78	1.15	.37	1.20	.42
1937	.54	.68	.14	.78	.24
1938	.37	.48	.11	.53	.16
1939	.40	.49	.09	.55	.15
1940	4/.40	.48	.08	.52	.12
1941	4/.53	.65	.12	.79	.26
1942	4/.63	.78	.15	.92	.29
1943	4/.99	1.21	.22	1.29	.30
1944	1.01	1.19	.18	1.30	.29
1945	1.01	1.28	.27	1.31	.30
1946	1.38	1.74	.36	1.78	.40
1947	1.73	2.22	.49	2.32	.59
1948	1.16	1.30	.14	1.40	.24
1949	1.06	1.43	.37	1.50	.44
1950	1.19	1.46	.27	1.54	.35
1951	1.26	1.36	.10	1.50	.24
1952	1.27	1.52	.25	1.53	.26
1953	1.17	1.40	.23	1.50	.33
1954	1.09	1.32	.23	1.41	.32
1955	.92	1.15	.23	1.26	.34
1956	.99	1.20	.21	1.26	.27
1957	.89	1.17	.28	1.24	.35
1958	.90	1.15	.25	1.19	.29
1959	.86	1.09	.23	1.16	.30

Footnotes at end of table

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Table 29--Barley: Farm and terminal market prices, 1900-76--Continued

Year 1/	Season average price received by farmers	Terminal price of feed barley 2/	Difference between farm and feed barley prices	Terminal price of malt barley	Difference between farm and malt barley prices
			Dollars per bushel		
1960	0.84	1.07	0.23	1.16	0.32
1961	.98	1.33	.35	1.41	.43
1962	.92	1.11	.19	1.18	.26
1963	.90	1.09	.19	1.18	.28
1964	.95	1.20	.25	1.27	.32
1965	1.02	1.32	.30	1.32	.30
1966	1.06	1.33	.27	1.35	.29
1967	1.01	1.23	.22	1.24	.23
1968	.92	1.16	.24	1.15	.23
1969	.88	1.08	.20	1.08	.20
1970	.97	1.22	.25	1.23	.26
1971	.99	1.16	.17	1.16	.17
1972	1.21	1.17	-.04	1.50	.29
1973	2.13	2.03	-.10	2.84	.71
1974	2.80	2.58	-.22	4.06	1.26
1975	2.43	2.38	-.05	3.30	.87
1976	2.29	2.34	.05	3.18	.89

NA = Not available.

1/ Prices for year beginning July 1 since 1907. Earlier prices as of December 1.

2/ Market prices from Bureau of Labor Statistics, Wholesale Prices--Monthly Quotations. Quotations for fair to good malting through September 1927. Beginning October 1927, price series changed to feeding barley, but quality remained unchanged; thus, no adjustment was made in series. Beginning August 1929, price changed to barley No. 3 feed, Minneapolis.

3/ Prices quoted as Special No. 2, 1929-33; average daily prices of Minneapolis No. 2 malting weighted by carlot sales, 1934-75; simple monthly average for No. 3 or better malting, 70 percent or better plump, Minneapolis, 1976.

4/ Includes allowance for unredeemed loans at average loan value.

Source: (53 and 56).

Table 30--Prices and marketing margins for barley and malt, 1971/72-1975/76

Crop year and month	Price received by farmers	Transportation and elevator margin	Minneapolis No. 3 or better malting (choice)	Transportation and maltsters' margin	Brewers' malt prices Chicago 1/
			Dollars per bushel		
1971/72:					
July	1.07	0.18	1.25	0.60	1.85
Aug.	.87	.23	1.10	.75	1.85
Sept.	.92	.19	1.11	.74	1.85
Oct.	.96	.21	1.17	.68	1.85
Nov.	1.02	.15	1.17	.68	1.85
Dec.	1.04	.13	1.17	.60	1.77
Jan.	1.04	.16	1.20	.57	1.77
Feb.	1.01	.18	1.19	.58	1.77
Mar.	.98	.21	1.19	.58	1.77
Apr.	.99	.20	1.19	.58	1.77
May	1.04	.16	1.20	.57	1.77
June	1.09	.13	1.22	.55	1.77
1972/73:					
July	1.04	.18	1.22	.55	1.77
Aug.	.96	.25	1.21	.56	1.77
Sept.	1.07	.19	1.26	.51	1.77
Oct.	1.17	.17	1.34	.43	1.77
Nov.	1.21	.13	1.34	.43	1.77
Dec.	1.32	.13	1.45	.32	1.77
Jan.	1.42	.17	1.59	.18	1.77
Feb.	1.34	.24	1.58	.33	1.91
Mar.	1.31	.30	1.61	.30	1.91
Apr.	1.31	.34	1.65	.39	2.03
May	1.39	.27	1.66	.37	2.03
June	1.55	.19	1.74	.29	2.03

Footnote at end of table.

Continued--

Table 30--Prices and marketing margins for barley and malt, 1971/72-1975/76--Continued

Crop year and month	Price received by farmers	Transportation and elevator margin	Minneapolis No. 3 or better malting (choice)	Transportation and maltsters' margin	Brewers' malt prices Chicago 1/
			Dollars per bushel		
1973/74:					
July	1.58	0.24	1.82	0.21	2.03
Aug.	2.10	.35	2.45	-.48	2.03
Sept.	2.16	.48	2.64	-.32	2.32
Oct.	2.23	.41	2.64	.19	2.83
Nov.	2.10	.52	2.62	.21	2.83
Dec.	2.19	.45	2.64	.42	3.06
Jan.	2.32	.44	2.76	.30	3.06
Feb.	2.52	.75	3.27	-.06	3.21
Mar.	2.61	.96	3.57	-.36	3.21
Apr.	2.15	.83	2.98	.59	3.57
May	2.19	.75	2.94	.89	3.83
June	2.25	.86	3.11	.72	3.83
1974/75					
July	2.33	1.05	3.38	.45	3.83
Aug.	2.78	.99	3.77	.06	3.83
Sept.	2.86	1.14	4.00	.15	4.15
Oct.	3.11	1.31	4.42	.03	4.45
Nov.	3.44	1.37	4.78	-.33	4.45
Dec.	3.30	1.35	4.65	.20	4.85
Jan.	3.17	1.45	4.62	.43	5.05
Feb.	2.89	1.56	4.45	.55	5.00
Mar.	2.55	1.60	4.15	.85	5.00
Apr.	2.72	1.62	4.34	.66	5.00
May	2.75	1.53	4.28	.72	5.00
June	2.30	1.67	3.97	1.03	5.00

Footnote at end of table.

Continued--

Table 30--Prices and marketing margins for barley and malt, 1971/72-1975/76--Continued

Crop year and month	Price received by farmers	Transportation and elevator margin	Minneapolis No. 3 or better malting (choice)	Transportation and maltsters' margin	Brewers' malt prices Chicago 1/
			Dollars per bushel		
1975/76:					
July	2.35	1.48	3.83	1.17	5.00
Aug.	2.56	1.09	3.65	1.35	5.00
Sept.	2.69	1.24	3.93	.89	4.82
Oct.	2.68	1.15	3.83	.99	4.82
Nov.	2.43	1.13	3.56	1.06	4.62
Dec.	2.35	1.00	3.35	1.27	4.62
Jan.	2.31	.93	3.24	1.13	4.37
Feb.	2.31	.90	3.21	1.16	4.37
Mar.	2.34	.88	3.22	1.15	4.37
Apr.	2.31	.86	3.17	1.05	4.22
May	2.41	.81	3.22	.85	4.07
June	2.60	.95	3.55	.52	4.07

1/ 34-pound bushel, in bulk.

Source: Prices received by farmers (64), Minneapolis malt prices (48), and brewers' malt prices (4).

Table 31--Terminal price relationships of Minneapolis feed barley with Chicago corn and Kansas City winter wheat, 1971/72-1973/74 1/

Crop year and month	Minneapolis No. 3 or better feed barley	Chicago No. 3 yellow corn	Difference	Kansas City No. 1 hard wheat ordinary protein	Difference
		Dollars per bushel			
1971/72:					
July	1.00	1.48	0.48	1.54	0.54
Aug.	.95	1.29	.34	1.54	.59
Sept.	.99	1.16	.17	1.53	.54
Oct.	1.04	1.10	.06	1.56	.52
Nov.	1.04	1.07	.03	1.56	.52
Dec.	1.04	1.07	.03	1.58	.54
Jan.	1.07	1.22	.15	1.58	.51
Feb.	1.07	1.21	.14	1.57	.50
Mar.	1.05	1.22	.17	1.58	.53
Apr.	1.06	1.26	.20	1.61	.55
May	1.08	1.28	.20	1.62	.54
June	1.05	1.23	.18	1.55	.50
1972/73:					
July	.96	1.29	.33	1.58	.62
Aug.	.98	1.29	.31	1.82	.84
Sept.	1.11	1.40	.29	2.10	.99
Oct.	1.16	1.32	.16	2.15	.99
Nov.	1.14	1.33	.19	2.25	1.11
Dec.	1.27	1.37	.10	2.62	1.35
Jan.	1.34	1.38	.04	2.67	1.33
Feb.	1.20	1.59	.39	2.08	.88
Mar.	1.19	1.59	.40	2.42	1.23
Apr.	1.36	2.01	.65	2.63	1.27
May	1.36	2.01	.65	2.63	1.27
June	1.51	2.42	.91	2.69	1.18

Footnote at end of table.

Continued--

Table 31--Terminal price relationships of Minneapolis feed barley with Chicago corn and Kansas City winter wheat, 1971/72-1973/74 1/--Continued

Crop year and month	Minneapolis No. 3 or better feed barley	Chicago No. 3 yellow corn	Difference	Kansas City No. 1 hard wheat ordinary protein	Difference
	Dollars per bushel				
1973/74:					
July	1.67	2.52	0.85	2.90	1.23
Aug.	2.12	2.91	.79	4.67	2.55
Sept.	2.12	2.47	.35	5.01	2.89
Oct.	2.02	2.37	.35	4.67	2.65
Nov.	1.80	2.50	.70	4.78	2.98
Dec.	2.12	2.68	.56	5.22	3.10
Jan.	2.34	2.90	.56	5.68	3.34
Feb.	2.51	3.13	.62	5.82	3.31
Mar.	2.32	2.99	.67	5.01	2.69
Apr.	1.74	2.69	.95	4.07	2.33
May	2.10	2.70	.60	3.59	1.49
June	2.36	2.93	.57	4.05	1.69

1/ Comparisons are on bushel basis and do not reflect actual weight or feeding value relationships.

Source: (48).

Table 32--Farm price of barley and selected classes of wheat, 1972/73 and 1973/74

Item	July	Aug.	Sep.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	Simple avg.
						Dollars per bushel							
Northern Plains (spring and durum): 1/													
Wheat, 1972/73	1.36	1.50	1.69	1.80	1.84	2.12	2.15	1.92	1.98	2.05	2.08	2.37	1.90
Barley, 1972/73	1.06	1.01	1.08	1.16	1.20	1.31	1.42	1.38	1.39	1.42	1.45	1.60	1.29
Difference	.30	.49	.61	.64	.64	.81	.73	.54	.59	.63	.63	.77	.61
Wheat, 1973/74	2.53	4.51	4.55	4.10	4.11	4.81	5.34	5.57	5.17	4.23	3.85	4.27	4.42
Barley, 1973/74	1.62	2.35	2.38	2.46	2.32	2.46	2.59	3.00	3.24	2.59	2.58	2.80	2.53
Difference	.91	2.16	2.17	1.64	1.79	2.35	2.75	2.57	1.93	1.64	1.27	1.47	1.89
Pacific Northwest (white): 2/													
Wheat, 1972/73	1.42	1.54	1.81	2.08	2.27	2.58	2.57	2.24	2.33	2.38	2.36	2.79	2.20
Barley, 1972/73	1.34	1.45	1.54	1.65	1.74	1.85	2.04	2.04	2.02	1.94	2.01	2.16	1.82
Difference	.08	.09	.27	.43	.53	.73	.53	.20	.31	.44	.35	.63	.38
Wheat, 1973/74	2.89	4.67	4.86	4.67	4.43	4.85	5.49	5.71	5.13	4.00	3.43	3.80	4.49
Barley, 1973/74	2.46	3.00	3.00	3.05	2.88	2.99	3.26	3.35	3.30	2.79	2.78	2.82	2.97
Difference	.43	1.67	1.86	1.62	1.55	1.86	2.23	2.36	1.83	1.21	.65	.98	1.52
Montana (winter):													
Wheat, 1972/73	1.20	1.30	1.52	1.73	1.79	2.30	2.25	1.89	1.98	2.03	2.04	2.37	1.98
Barley, 1972/73	.94	.95	.99	1.11	1.19	1.29	1.43	1.37	1.38	1.30	1.35	1.55	1.23
Difference	.26	.35	.53	.62	.60	1.01	.82	.52	.60	.73	.69	.82	.75
Wheat, 1973/74	2.45	4.35	4.32	3.87	3.87	4.47	5.10	5.40	4.84	3.79	3.30	3.76	3.81
Barley, 1973/74	1.70	2.25	2.12	2.23	1.99	2.34	2.34	2.46	2.37	1.93	2.20	2.20	2.18
Difference	.75	2.10	2.20	1.64	1.88	2.13	2.76	2.94	2.47	1.86	1.10	1.56	1.63

1/ Includes North Dakota, South Dakota, and Minnesota.
2/ Includes Washington, Oregon, and Idaho.

Source: (57) and Montana Crop and Livestock Reporting Service, Helena, Mont.

Table 33--Barley-hog ratios, California and Montana, 1972/73-1974/75

Crop year and month	California			Montana		
	Hogs	Barley	Barley-hog ratio	Hogs	Barley	Barley-hog ratio
	Dol./cwt	Dol./bu.		Dol./cwt	Dol./bu.	
1972/73:						
July	27.30	1.36	20.1	25.80	0.94	27.4
Aug.	27.30	1.39	19.6	26.30	.95	27.7
Sept.	27.70	1.43	19.4	27.10	.99	27.4
Oct.	27.70	1.47	18.8	26.90	1.11	24.2
Nov.	27.20	1.51	18.0	25.20	1.19	21.2
Dec.	29.10	1.65	17.6	28.30	1.29	21.9
Jan.	30.50	1.72	17.7	29.70	1.43	20.8
Feb.	32.50	1.71	19.0	31.60	1.37	23.1
Mar.	36.40	1.70	21.4	35.30	1.38	25.5
Apr.	36.70	1.68	21.8	34.30	1.30	26.4
May	24.90	1.69	20.7	34.30	1.35	25.4
June	36.20	1.81	20.0	35.70	1.55	23.0
1973/74:						
July	38.70	1.90	20.4	39.10	1.70	23.0
Aug.	53.70	2.51	21.4	55.10	2.25	24.5
Sept.	44.10	2.54	17.4	41.80	2.12	19.7
Oct.	40.70	2.64	15.4	39.10	2.23	17.5
Nov.	39.30	2.59	15.2	38.80	1.99	19.5
Dec.	39.00	2.67	14.6	37.80	2.15	17.6
Jan.	40.30	2.75	14.7	38.60	2.34	16.5
Feb.	38.60	2.93	13.2	38.70	2.46	15.7
Mar.	35.30	2.96	19.9	34.80	2.37	14.7
Apr.	30.80	2.49	12.4	30.50	1.93	15.8
May	27.30	2.32	11.7	26.90	1.95	13.8
June	24.50	2.36	10.4	24.10	2.20	11.0
1974/75:						
July	34.40	2.51	13.7	31.30	2.21	14.2
Aug.	35.40	3.04	11.6	34.20	2.55	13.4
Sept.	33.80	3.13	10.9	32.40	2.63	12.3
Oct.	34.80	3.27	10.6	35.50	2.77	12.8
Nov.	35.00	3.39	10.3	35.90	3.04	11.8
Dec.	36.80	3.39	10.8	36.60	3.00	12.2
Jan.	36.80	3.33	11.0	37.50	2.85	13.2
Feb.	37.70	2.94	12.8	37.60	2.48	15.2
Mar.	37.60	2.66	14.1	37.40	2.18	17.2
Apr.	37.90	2.71	14.0	38.30	2.40	16.0
May	42.40	2.77	15.3	42.90	2.46	17.4
June	44.50	2.30	19.3	43.60	2.31	18.9

Source: (64).

Table 34--Barley: Production cost and return data for Northern Plains States, 1975 1/

Budget item	Unit	Northern Plains 2/							
		Minnesota		North Dakota		South Dakota		Montana	
		Per acre	Per bushel	Per acre	Per bushel	Per acre	Per bushel	Per acre	Per bushel
Gross receipts:									
Production	Bu.	35.2	--	35.5	--	28.5	--	38.9	--
Price	Dol./bu.	2.65	--	2.50	--	2.20	--	2.15	--
Total receipts	Dol.	93.28	2.65	88.75	2.50	62.70	2.20	83.63	2.15
Production costs:									
Variable costs:									
Preharvest	Dol.	34.24	.97	25.86	.73	23.56	.83	20.26	.52
Harvest	do.	4.54	.13	4.95	.14	4.74	.17	6.06	.16
Total variable costs	do.	38.78	1.10	30.81	.87	28.30	.99	26.32	.68
Ownership (fixed) costs:									
Tractors	do.	3.90	.11	3.35	.09	1.84	.06	3.26	.08
Machinery and equipment	do.	15.88	.45	14.29	.40	10.78	.38	11.15	.29
Total fixed costs	do.	19.78	.56	17.64	.50	12.62	.44	14.41	.37
Total costs	do.	58.56	1.66	48.45	1.37	40.92	1.43	40.73	1.05
Return to land, overhead, risk, and management	do.	34.72	.99	40.30	1.14	21.78	.76	42.90	1.10

Footnotes at end of table.

Continued--

Table 34--Barley: Production cost and return data for Northern Plains States, 1975 1/--Continued

Budget item	Unit	Northern Plains 2/							
		Minnesota		North Dakota		South Dakota		Montana	
		Per acre	Per bushel	Per acre	Per bushel	Per acre	Per bushel	Per acre	Per bushel
Land charge (cash or share rent)	Dol.	26.04	.74	29.88	.84	19.17	.67	25.78	.66
Management charge (7 percent of gross receipts)	do.	6.53	.19	6.21	.17	4.39	.15	5.85	.15
Return to overhead and risk	do.	2.15	.06	4.21	.12	-1.78	-.06	11.27	.29

-- = Not applicable.

1/ Data developed by Firm Enterprise Data System, Commodity Economics Division, ESCS in cooperation with Oklahoma State University, Stillwater, Okla.

2/ Budgets selected for each State are: Minnesota--barley, area 300; North Dakota--barley following crop, area 200; Sourth Dakota--barley following crop, area 200; and Montana--barley following fallow, area 100.

Table 35--Barley: Production cost and return data for Western States, 1975 1/

Budget item	Unit	Western States 2/							
		Idaho		Washington		Oregon		California	
		Per acre	Per bushel	Per acre	Per bushel	Per acre	Per bushel	Per acre	Per bushel
Gross receipts:									
Production	Bu.	67.1	--	56.9	--	36.3	--	68.8	--
Price	Dol./bu.	2.35	--	2.55	--	2.55	--	2.50	--
Total receipts	Dol.	157.69	2.35	145.09	2.55	92.57	2.55	172.00	2.50
Production costs:									
Variable costs:									
Preharvest	Dol.	79.19	1.18	39.72	.70	34.50	.95	104.69	1.52
Harvest	do.	8.21	.12	3.87	.07	3.41	.09	13.50	.20
Total variable costs	do.	87.40	1.30	43.58	.77	37.91	1.04	118.19	1.72
Ownership (fixed) costs:									
Tractors	do.	2.82	.04	2.62	.05	2.92	.08	4.03	.06
Machinery and equipment	do.	12.07	.18	19.56	.34	18.93	.52	10.34	.15
Total fixed costs	do.	14.89	.22	22.18	.39	21.85	.60	14.37	.21
Total costs	do.	102.29	1.52	65.76	1.16	59.76	1.64	132.56	1.93
Return to land, overhead, risk, and management	do.	55.40	.83	79.33	1.39	32.80	.90	39.44	.57

Footnotes at end of table.

Continued--

Table 35--Barley: Production cost and return data for Western States, 1975 1/--Continued

Budget item	Unit	Western States 2/							
		Idaho		Washington		Oregon		California	
		Per acre	Per bushel	Per acre	Per bushel	Per acre	Per bushel	Per acre	Per bushel
Land charge (cash, or share rent)	Dol.	76.95	1.15	38.42	.68	30.48	.84	78.00	1.13
Management charge (7 percent of gross receipts)	do.	11.04	.16	10.16	.18	6.48	.18	12.04	.17
Return to overhead and risk	do.	-32.59	.49	30.76	.54	-4.16	-.11	-50.60	-.74

-- = Not applicable.

1/ Data developed by Firm Enterprise Data System, Commodity Economics Division, ESCS, in cooperation with Oklahoma State University, Stillwater, Okla.

2/ Budgets selected for each State are: Idaho--barley irrigated, area 400; California--barley, irrigated, area 500; Oregon--barley fallow, area 200; and Washington--barley following crop, area 400.

Table 36--Replacement costs, estimated weighted average cost per bushel, for handling and storing grain, by area and type of facility, fiscal year 1975 1/

Area and type of facility	Received by--			Loadout by--			Storage
	Truck	Rail	Water	Truck	Rail	Water	
	Cents per bushel						
North Plains:							
Country	2.32	--	--	1.84	2.24	--	18.35
Inland terminal	1.53	2.68	--	5.48	2.50	1.27	9.81
Port terminal	--	--	--	--	--	--	--
Mid-Plains:							
Country	2.65	2.33	--	3.16	2.94	.71	17.14
Inland terminal	3.07	3.42	--	2.49	2.47	.87	18.73
Port terminal	--	--	--	--	--	--	--
South Plains:							
Country	3.15	--	--	2.62	4.62	--	18.70
Inland terminal	3.18	3.52	--	3.91	2.90	--	26.60
Gulf port terminal	1.43	1.97	1.68	5.55	1.64	.95	26.08
West:							
Country	2.53	--	--	3.28	3.46	--	20.51
Inland terminal	2.29	1.71	--	2.64	1.52	.97	16.67
Port terminal	3.27	2.42	2.55	4.26	3.53	1.39	30.05
Great Lakes:							
Country	2.17	--	--	2.79	3.16	1.74	18.00
Inland terminal	1.98	2.31	6.05	.79	1.93	.34	13.23
Port terminal	2.71	2.43	3.56	3.78	2.81	1.34	23.19
South and East:							
Country	1.53	1.82	4.48	3.36	3.53	1.01	21.77
Inland terminal	2.23	1.78	3.85	3.21	3.26	2.00	11.84
East port terminal	4.00	2.00	3.91	10.87	6.70	2.12	23.54
United States:							
Country	2.39	2.25	4.47	2.76	3.04	1.12	18.18
Inland terminal	2.29	2.97	4.28	2.02	2.49	.90	16.72
Port terminal	2.50	2.19	1.79	6.41	2.84	1.13	25.03
All facilities	2.39	2.50	1.96	2.72	2.88	1.08	18.44

-- = Not applicable.

1/ Depreciation and interest on investment based on replacing building and equipment at 1974/75 price levels.

Source: (36).

Table 37--Annual operating and fixed costs for conventional malthouse, North Dakota location, 1973

Item	Current estimate	Cost/bushel
	Dollars	
Operating costs:		
Malthouse electrical power	65,000	0.022
Malthouse natural gas	110,000	
Propane standby costs (3 months)	45,000	.052
Labor cost (including malthouse, lab, and maintenance lab)	150,000	.050
Repair and maintenance	30,000	.010
Cost of necessary working capital (credit line or cash necessary for inventory and accounts receivable financing) 1/	160,000	.053
Total operating costs 2/	560,000	.187
Fixed costs:		
State and local taxes 3/	43,200	.014
Administrative salaries and benefits	75,000	.025
Insurance (inventories, fire and casualty)	12,000	.004
Annual depreciation 4/	240,000	.080
Total fixed costs	370,200	.123
Total costs	930,200	.310

1/ Working capital needs are estimated to be $2 million at an 8-percent interest rate.

2/ Excludes the cost of an assumed 3 million bushels of barley.

3/ State and local taxes apply only after a potential 5-year tax exemption period. See "Malt Plant Feasibility Study," Bul. 487, North Dakota State University, Nov. 1970, pp. 33 and 56.

4/ Depreciation is computed over a 20-year period on the total cost of the malthouse and auxiliary facilities.

Source: (12).

Table 38--Barley: Price-support operations, crop years 1950-75

Crop year	National average support price			Quantity placed under price support			Percent put under support
	Loan rate	Support payment	Total	Loans	Purchase agreements	Total	
	-- Dollars per bushel --			-- Million bushels --			Percent
1950	1.10	0.	1.10	29.6	1.0	30.6	10.1
1951	1.11	0.	1.11	16.3	.6	16.9	6.6
1952	1.22	0.	1.22	7.5	2.4	9.9	4.3
1953	1.24	0.	1.24	36.1	9.1	45.2	18.3
1954	1.15	0.	1.15	100.8	14.3	115.1	30.4
1955	.95	0.	.94	78.5	17.5	96.0	23.8
1956	1.02	0.	1.02	63.5	13.6	77.1	20.5
1957	.95	0.	.95	119.3	22.9	142.2	32.1
1958	.93	0.	.93	86.9	20.4	107.3	22.5
1959	.77	0.	.77	33.9	6.9	40.8	9.7
1960	.77	0.	.77	43.1	6.6	49.7	11.0
1961	.93	0.	.93	42.9	1.3	44.2	11.3
1962	.93	0.	.93	33.2	6.7	39.9	9.3
1963	.82	.14	.96	23.7	4.5	28.2	7.2
1964	.84	.12	.96	15.0	1/	15.0	3.9
1965	.80	.16	2/.96	16.5	1/	16.5	4.2
1966	3/.80	.20	1.00	16.5	1/	16.5	4.2
1967	.90	0.	.90	47.8	.4	48.2	12.9
1968	.90	0.	.90	116.2	7.6	123.8	29.3
1969	.83	.20	1.03	52.0	.5	52.5	12.4
1970	.83	.20	1.03	27.5	.1	27.6	6.7
1971	.81	0.	.81	88.9	1/	88.9	19.2
1972	.83	.32	1.15	41.7	1/	41.7	9.9
1973	1.08	.26	1.34	15.3	1/	15.3	3.6
1974	.90	.23	1.13	6.9	1/	6.9	2.3
1975	.90	.23	1.13	8.0	1/	8.0	2.1

1/ Less than 500,000 bushels.

2/ Malting barley on exempted farms--price support loan 96 cents--no support payments.

3/ Malting barley producers electing the exemption would receive no price support payment but would receive an additional payment of 12.5 cents a bushel.

Source: (53 and 56).

Table 39--Barley: Disposition of quantities placed under price support, crop years 1950-75

Crop year	Total placed under price support 1/	Redeemed by farmers 2/	Delivered to CCC	Resealed	Total deliveries to CCC 3/
			Million bushels		
1950	30.6	27.1	3.5	4/	3.5
1951	16.9	14.7	2.2	4/	2.2
1952	9.9	7.3	2.6	4/	2.6
1953	45.2	13.0	28.1	4.1	32.4
1954	115.1	24.8	84.8	5.5	94.4
1955	96.0	23.3	72.7	4/	77.2
1956	77.1	16.7	53.4	7.0	64.4
1957	142.1	23.7	101.2	17.2	121.9
1958	107.3	37.2	45.3	24.8	69.9
1959	40.8	26.5	4.9	9.4	8.7
1960	47.3	24.4	10.4	12.5	16.9
1961	44.2	30.0	9.5	4.7	14.0
1962	39.9	10.6	16.8	12.5	26.3
1963	28.8	16.2	2.7	9.3	3.7
1964	15.0	11.8	.2	3.0	.3
1965	16.5	12.5	5/	4.0	1.8
1966	16.5	10.5	5/	6.0	2.5
1967	48.2	18.8	.8	28.6	17.0
1968	123.8	38.0	38.3	47.5	70.0
1969	52.5	22.1	4.1	26.3	5.6
1970	27.6	19.1	.6	7.9	.9
1971	88.9	59.6	.7	28.6	.7
1972	42.4	42.4	0	4/	0
1973	15.3	15.3	0	4/	0
1974	6.9	6.9	0	4/	0
1975 6/	8.0	8.0	0	4/	0

1/ Placed under loan and purchase agreement through 1963; under loan and deliveries to CCC from purchase program beginning 1964.
2/ Residual; grain on which loans are repaid.
3/ Includes deliveries from original program, from reseal program, and over deliveries.
4/ Loans were not extended.
5/ Less than 500,000 bushels.
6/ Preliminary.

Source: Agr. Stab. and Conserv. Serv., U.S. Dept. Agr.

Table 40--Barley: CCC-owned stocks and sales by type of program, 1950-75

Year beginning July 1	CCC-owned stocks (July 1) 1/			Sales by CCC		
	Binsites	Commercial storage	Total stocks	Domestic	Export	Total
	Million bushels					
1950	3	29	32	NA	NA	NA
1951	3	17	20	NA	NA	NA
1952	1	8	9	NA	NA	NA
1953	2/	2	2	NA	NA	NA
1954	1	13	14	4	30	34
1955	1	73	74	5	91	96
1956	1	59	60	4	49	53
1957	4	68	72	6	86	92
1958	10	76	86	5	31	36
1959	20	77	97	31	28	59
1960	13	56	69	7	28	35
1961	13	38	51	28	12	40
1962	7	22	29	3	8	11
1963	9	29	38	6	24	30
1964	13	16	29	3	12	15
1965	7	13	20	4	6	10
1966	5	6	11	2	3	5
1967	4	2	6	2/	2/	2/
1968	4	2	6	2/	2/	2/
1969	4	23	27	1	9	10
1970	5	13	18	3	33	36
1971	5	24	29	3	34	37
1972	1	0	1	14	7	21
1973	0	1	1	1	0	1
1974	0	1	1	1	0	1
1975	0	0	0	0	0	0

NA = Not available.
1/ Beginning in 1970, data represent CCC uncommitted inventories.
2/ Less than 500,000 bushels.

Source: Agr. Stab. and Conserv. Serv., U.S. Dept. Agr.

Table 41--Area planted to various grain crops, world, 1950-75

Year	Wheat	Rye	Paddy rice	Corn	Barley	Oats	Millet	Sorghum	Other grains	Total grains
					Million hectares					
1950	172	39	103	89	47	53	33	28	38	602
1951	174	38	104	90	47	52	33	28	37	603
1952	186	38	105	91	49	53	35	28	38	623
1953	189	34	109	93	51	51	38	29	38	634
1954	189	35	109	96	55	52	38	31	38	643
1955	196	33	111	99	55	51	40	31	38	656
1956	200	33	117	104	58	49	39	29	35	664
1957	208	32	115	97	56	47	36	35	35	660
1958	208	32	118	102	56	46	36	35	29	662
1959	203	31	117	100	56	44	35	35	31	651
1960	203	29	120	103	59	42	37	37	35	665
1961	203	29	120	101	59	39	37	35	37	659
1962	207	29	122	102	61	34	37	36	39	666
1963	207	26	122	105	67	32	37	37	40	672
1964	216	28	125	103	66	30	37	37	39	682
1965	217	27	125	102	64	30	38	37	34	673
1966	215	24	125	106	65	30	37	37	40	680
1967	220	23	127	108	66	30	39	40	40	693
1968	224	22	128	107	68	31	38	38	41	699
1969	218	19	132	107	71	31	39	40	41	698
1970	207	19	132	109	70	31	38	40	40	686
1971	212	19	132	113	72	30	37	41	39	695
1972	210	17	130	110	78	30	37	37	39	689
1973	217	15	135	113	81	31	39	40	38	709
1974	220	18	137	116	82	29	37	40	38	716
1975	224	15	140	118	85	31	39	42	38	732

Source: (46).

Table 42--Barley: Production by world region, 1950-75

Year	North America	South America	Africa	Asia	Oceania	Eastern Europe	Western Europe	Total world
				Million metric tons				
1950	10.4	1.2	3.4	18.0	0.6	10.6	9.9	54.1
1951	11.1	.8	3.5	18.3	.5	10.2	11.4	55.9
1952	11.5	1.7	4.1	19.3	.8	13.5	12.6	63.5
1953	11.2	1.5	4.0	20.9	1.0	13.4	13.4	65.5
1954	12.2	1.7	4.4	20.9	.7	12.3	13.5	65.7
1955	14.4	1.5	3.4	20.2	1.0	15.9	14.3	70.8
1956	14.3	1.9	4.1	20.9	1.2	17.9	18.7	79.0
1957	14.5	1.5	2.8	22.1	.8	14.4	16.9	73.0
1958	15.7	1.6	4.0	19.8	1.5	18.3	17.2	78.2
1959	14.0	1.7	3.5	18.8	.8	16.4	19.8	75.1
1960	13.7	1.4	3.9	19.6	1.6	22.9	21.6	84.6
1961	11.2	1.4	2.4	19.6	1.0	19.8	22.0	77.4
1962	13.1	.9	3.9	22.1	1.0	26.4	25.4	92.8
1963	13.6	1.6	4.3	21.0	1.1	26.5	28.0	95.7
1964	12.2	1.4	3.5	20.3	1.2	35.3	29.0	102.9
1965	13.5	1.0	3.6	21.4	1.1	27.9	30.2	98.6
1966	15.3	1.0	2.5	21.0	1.5	35.6	31.8	108.8
1967	13.8	1.2	3.4	20.9	1.0	33.0	37.3	110.7
1968	16.6	1.2	5.9	22.1	1.9	37.4	37.5	122.6
1969	17.6	1.1	4.5	20.9	1.9	42.0	38.9	127.0
1970	18.2	1.0	4.4	20.0	2.5	47.2	35.6	128.8
1971	23.4	1.1	4.8	20.4	3.3	45.5	41.6	140.0
1972	20.8	1.5	5.2	21.1	2.1	48.4	43.6	142.6
1973	19.8	1.3	3.6	18.5	2.7	67.7	44.4	157.8
1974	15.7	1.1	4.5	20.0	2.8	69.2	46.8	160.2
1975	18.2	1.2	4.0	22.5	3.5	49.6	44.9	143.9

Source: (46).

Table 43--Barley: Production in selected countries, 1950-75

Year	United States	Canada	United Kingdom	France	Spain	West Germany	U.S.S.R.	P.R.C.
				Million metric tons				
1950	6.6	3.6	1.7	1.6	1.5	1.5	6.4	7.9
1951	5.6	5.3	2.0	1.7	2.2	1.7	5.2	8.0
1952	5.0	6.3	2.4	1.7	2.2	1.8	8.7	8.1
1953	5.4	5.7	2.6	2.2	1.5	2.1	7.9	8.2
1954	8.3	3.8	2.3	2.5	2.2	1.9	7.8	8.3
1955	8.8	5.5	3.0	2.7	1.7	2.1	10.4	8.4
1956	8.2	5.9	2.8	6.4	1.6	2.3	12.9	8.6
1957	9.6	4.7	3.0	3.6	1.9	2.5	8.5	8.7
1958	10.4	5.2	3.2	3.9	1.8	2.4	13.0	7.9
1959	9.1	4.7	4.1	4.9	2.1	2.8	10.2	6.5
1960	9.3	4.2	4.3	5.7	1.6	3.2	16.0	6.9
1961	8.5	2.5	5.1	5.4	1.7	2.7	13.3	7.4
1962	9.3	3.6	5.9	6.0	2.2	3.7	19.5	8.6
1963	8.6	4.8	6.7	7.4	2.1	3.6	19.8	9.1
1964	8.4	3.7	7.5	6.8	1.9	3.9	28.6	9.3
1965	8.6	4.8	8.2	7.4	1.9	3.4	20.3	9.1
1966	8.5	6.6	8.7	7.4	2.0	3.9	27.9	9.1
1967	8.1	5.5	9.2	9.9	2.6	4.7	24.7	8.6
1968	9.3	7.1	8.3	9.1	3.4	5.0	28.9	8.6
1969	9.3	8.1	8.7	9.5	3.9	5.1	32.7	8.4
1970	9.1	8.9	7.5	8.1	3.1	4.8	38.2	8.8
1971	10.1	13.1	8.6	8.9	4.8	5.8	34.6	9.0
1972	9.2	11.3	9.2	10.4	4.4	6.0	36.8	9.4
1973	9.2	10.2	9.0	10.8	4.4	6.6	55.0	9.2
1974	6.6	8.8	9.1	10.0	5.4	7.0	54.2	9.7
1975	8.3	9.5	8.4	9.3	6.7	7.0	35.8	9.9

Source: (46)

Table 44--Production of barley and other grains by world regions, 1975

World region	Production of--				
	Wheat	Rice	Barley	Other grains	Total
	1,000 metric tons				
North America	75.2	5.8	17.9	186.1	285.0
Central America	2.9	2.0	.4	14.7	20.0
South America	11.9	11.0	1.2	32.9	57.0
Africa	8.8	7.7	4.0	45.7	66.2
West Asia	19.3	1.6	6.6	2.6	30.1
South Asia	35.4	96.8	3.7	29.4	165.3
East Asia	39.2	222.2	12.2	84.1	357.7
Oceania	11.9	.4	3.5	2.8	18.6
Eastern Europe	95.4	2.2	49.5	75.5	222.6
Western Europe	48.6	1.7	44.9	37.6	132.8
Total	348.3	351.3	143.9	510.9	1,354.4

Source: (46).

Table 45--World production of malt liquors in major producing countries, 1971-75

Country	1971	1972	1973	1974	1975
			1,000 barrels		
United States 1/	127,375	133,604	138,445	156,180	160,572
West Germany	76,722	77,602	78,796	79,072	79,630
United Kingdom	48,315	49,163	51,614	53,693	55,057
U.S.S.R. 2/	35,792	39,202	39,968	43,293	51,130
Japan	26,057	29,109	32,364	30,752	33,483
Czechoslovakia	18,981	19,173	18,978	18,866	19,066
France	17,385	16,888	18,696	18,503	19,018
Canada	14,176	15,306	15,925	16,306	18,099
East Germany	15,169	15,596	16,703	16,874	17,214
Australia	13,779	14,179	14,870	15,596	16,482
Mexico	10,612	12,734	14,570	17,281	16,510
Belgium	11,504	2/ 11,504	12,057	12,285	11,903
Brazil	9,800	10,823	11,930	13,209	14,775
Spain	10,382	10,510	12,374	13,193	14,162
Poland	9,552	10,065	11,760	10,602	10,959
Netherlands	8,089	8,416	9,430	9,904	10,596
Yugoslavia	7,093	7,967	8,269	8,036	7,224
Denmark	6,924	6,988	7,688	7,165	7,568
Austria	6,597	6,853	6,960	6,517	6,478
Colombia	6,902	6,562	7,073	7,500	6,580
Italy	5,352	5,575	7,347	6,824	5,509
All other countries	73,910	79,014	88,768	85,374	85,314
Total	560,468	586,833	624,485	657,025	683,811

1/ Tax paid withdrawals only.
2/ Estimated.

Source: (37).

Table 46--Barley: World exports and U.S. exports as a percentage of total world exports, 1950-75 1/

Year beginning July 1	World exports	U.S. exports as percentage of total world exports
	1,000 metric tons	Percent
1950	3,939	19.3
1951	4,785	11.8
1952	7,072	10.0
1953	6,457	4.6
1954	5,565	15.5
1955	7,175	29.8
1956	8,280	15.0
1957	7,575	24.9
1958	6,809	35.9
1959	6,179	40.3
1960	5,896	30.8
1961	7,509	23.8
1962	4,881	29.7
1963	7,433	21.0
1964	7,391	20.4
1965	8,378	18.8
1966	6,577	14.2
1967	6,827	9.4
1968	6,912	3.6
1969	8,631	3.4
1970	11,244	15.6
1971	13,496	8.2
1972	11,770	12.2
1973	11,615	16.7
1974	9,226	9.4
1975	12,604	4.1

1/ Figures do not include malt products.

Source: (45) and unpublished World Grain Trade Statistics, 1974/75, For. Agr. Serv., U.S. Dept. Agr.

Table 47--Barley: World trade by major country of origin and destination, 1973-74 1/

Destination 2/	Origin 3/												Total	
	United States		Canada		Australia		Argentina		Total four countries		All other		1973	1974
	1973	1974	1973	1974	1973	1974	1973	1974	1973	1974	1973	1974		
	1,000 metric tons													
Japan	46	85	806	745	410	509	--	--	1,262	1,339	52	--	1,314	1,339
Belgium-Luxembourg	60	--	32	7	7	32	--	--	99	39	1,081	993	1,180	1,032
West Germany	194	15	222	63	14	27	1	--	431	105	940	873	1,371	978
Italy	171	18	515	485	--	--	103	8	789	511	458	308	1,247	819
Poland	256	20	287	356	--	--	1	--	544	376	369	252	913	628
Switzerland	--	--	--	6	--	--	--	--	--	6	557	513	557	519
Netherlands	6	1	21	61	--	--	--	1	27	63	317	396	344	459
Korea, Republic of	344	248	6	--	27	152	--	--	377	400	--	--	377	400
United Kingdom	--	--	70	37	38	15	--	--	108	52	562	346	670	398
United States	--	--	276	316	--	--	--	--	276	316	--	--	276	316
Iran	39	82	56	163	24	26	--	--	119	271	--	1	119	272
Mexico	165	205	--	--	--	--	--	--	165	205	--	4	165	209
Israel	13	--	236	206	--	--	--	--	249	206	2	--	251	206
All other	648	193	383	183	212	225	44	20	1,287	621	1,530	701	2,817	1,322
World total	1,942	867	2,910	2,628	732	986	149	29	5,733	4,510	5,868	4,387	11,601	8,897

-- = Negligible or not applicable.

1/ Year beginning July 1.

2/ Includes all countries importing 200 metric tons or more in 1974.

3/ Exports from France not available for these years. In 1972, French exports totaled 3.6 million metric tons compared with 3.7 million metric tons by Canada. In 1972, France exported large quantities of barley to the U.S.S.R., West Germany, Belgium-Luxembourg, Hungary, Switzerland, and Poland.

Source: For. Agr. Serv., U.S. Dept. Agr.

Table 48--Economic, physical, and institutional factors that affect the barley economy of the United States

Sector	Component	Economic factors	Physical factors	Institutional factors
Supply	Production:			
	Acreage	Past and expected prices of barley and wheat Production cost	Malt barley contracts Weather Wheat acreage	Government loan and price support programs
	Yield	Input cost	Weather Diseases Cultural practices Varieties	Varietal research
	Imports	Domestic malt barley supply Import prices	U.S. production of malt barley Carryover	Trade barriers
	Carryover	Domestic demand	Working stock requirements	Government programs
Demand	Malting	Beer production Malt price Disposable income	Population Per capita consumption trend Exports	Taxes on beer and alcoholic beverages
	Livestock feed	Grain prices Grain supplies Livestock and poultry prices	Livestock and poultry production	Import barriers on meat
	Seed	Barley prices	Barley acreage Wheat acreage	
	Exports	World grain prices Barley prices	World supply World livestock numbers	Trade barriers P.L. 480 programs

Table 49--Whole grain weights, measures, and conversion factors

Grain	Pounds	Bushels	
	Per bushel	Per metric ton	Per quintal
Barley	48	45.9296	4.59
Buckwheat	48	45.9296	4.59
Corn:			
Shelled	56	39.6383	3.96
Ear husked	70	31.4946	3.15
Flaxseed	56	39.6383	3.96
Oats:			
Light	32	68.8945	6.89
Heavy	38	58.0164	5.80
Rice, rough	45	48.9916	4.90
Rye	56	39.6383	3.96
Sorghum grain	56	39.6383	3.96
Soybeans	60	36.7437	3.67
Wheat	60	36.7437	3.67

Miscellaneous factors:
Rice: 1 hundredweight of rough rice = 2.2 bushels.
1 barrel of rough rice = 162 pounds or 3.60 bushels.
Soybeans: 1 hundredweight of soybeans = 1.67 bushels.
Sorghum: 1 hundredweight of sorghum = 1.78 bushels.

1 metric ton = 22.046 hundredweight
1 metric ton = 2,204.623 pounds
1 short ton or ton = 2,000 pounds
1 long ton = 2,240 pounds
1 quintal = 220.46 pounds
10 quintal = 1 metric ton
1 hectare = 2.471 acres

Table 50--Conversion factors relating to barley and malt content of specified products 1/

Product	Conversion factors				
	Bushels of barley to pounds of product	Pounds of product to bushels of barley	Pounds of barley to pounds of product	Pounds of product to pounds of barley	Pounds of product to pounds of malt
Barley, unprocessed	48.0	0.02083	1.0	1.0	0.708
Barley flour	21.8	.04587	.454	2.230	--
Pearl barley	26.4	.03788	.550	1.818	--
Malt	34.0	.02941	.708	1.412	1.0
Malt sirups and malt extract	27.2	.03676	.567	1.765	1.25
Malted cereal granules	160.0	.00625	3.333	.300	.212

-- = Not applicable.

1/ One bushel of barley weighing 48 pounds yields 1 bushel of malt weighing 34 pounds. In 1972, 27.5 pounds of barley malt were used per barrel of malt beverage or an equivalent of .81 bushel of barley. One barrel of malt liquor is equal to 31 gallons of beer. These are U.S. standards. Weights may vary considerably in some countries.

Source: (54).

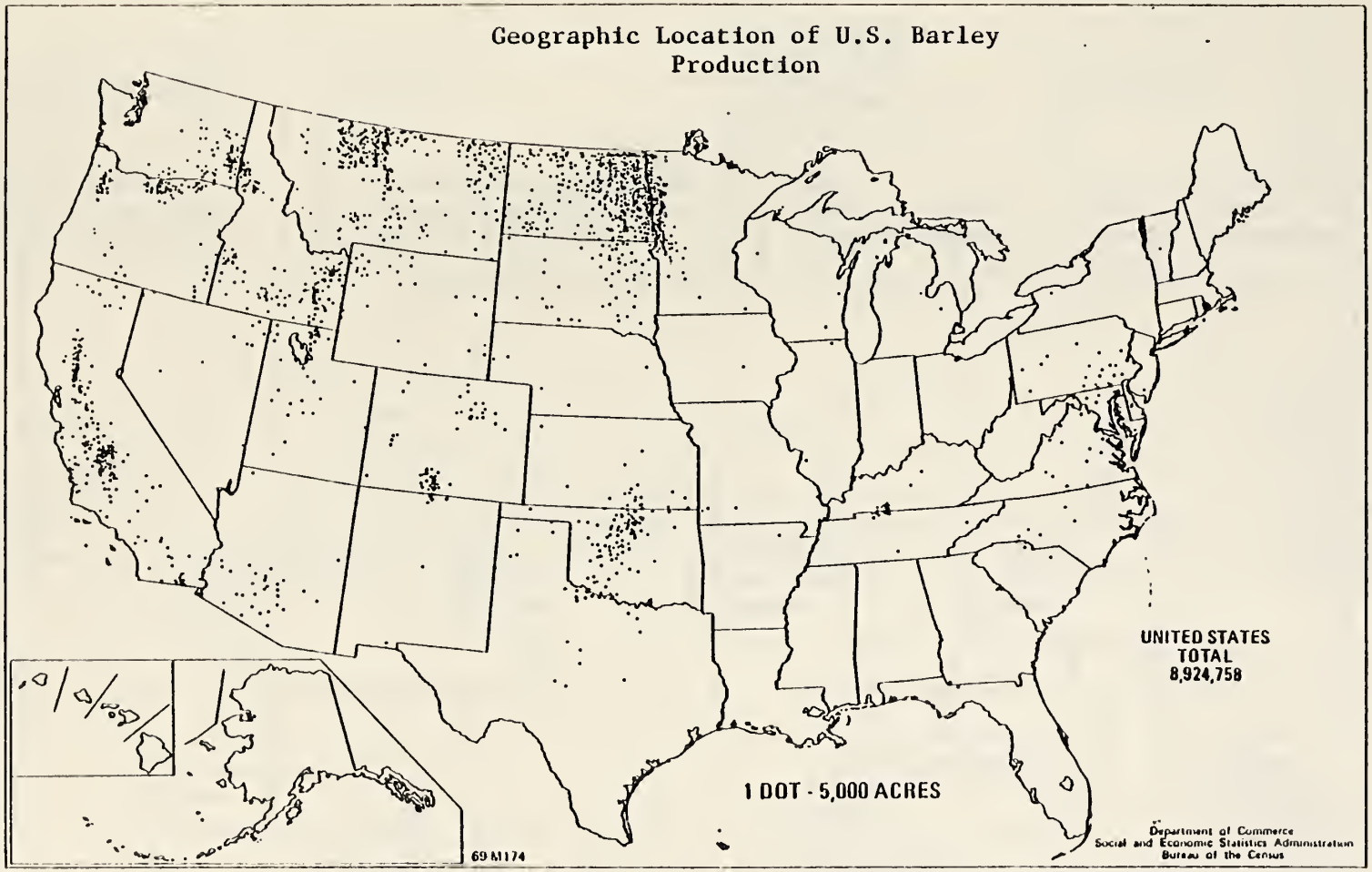

Geographic Location of U.S. Barley Production
UNITED STATES TOTAL 8,924,758
1 DOT - 5,000 ACRES
69 M174
Department of Commerce
Social and Economic Statistics Administration
Bureau of the Census

Figure 1.

Barley classes, subclasses, and special grades

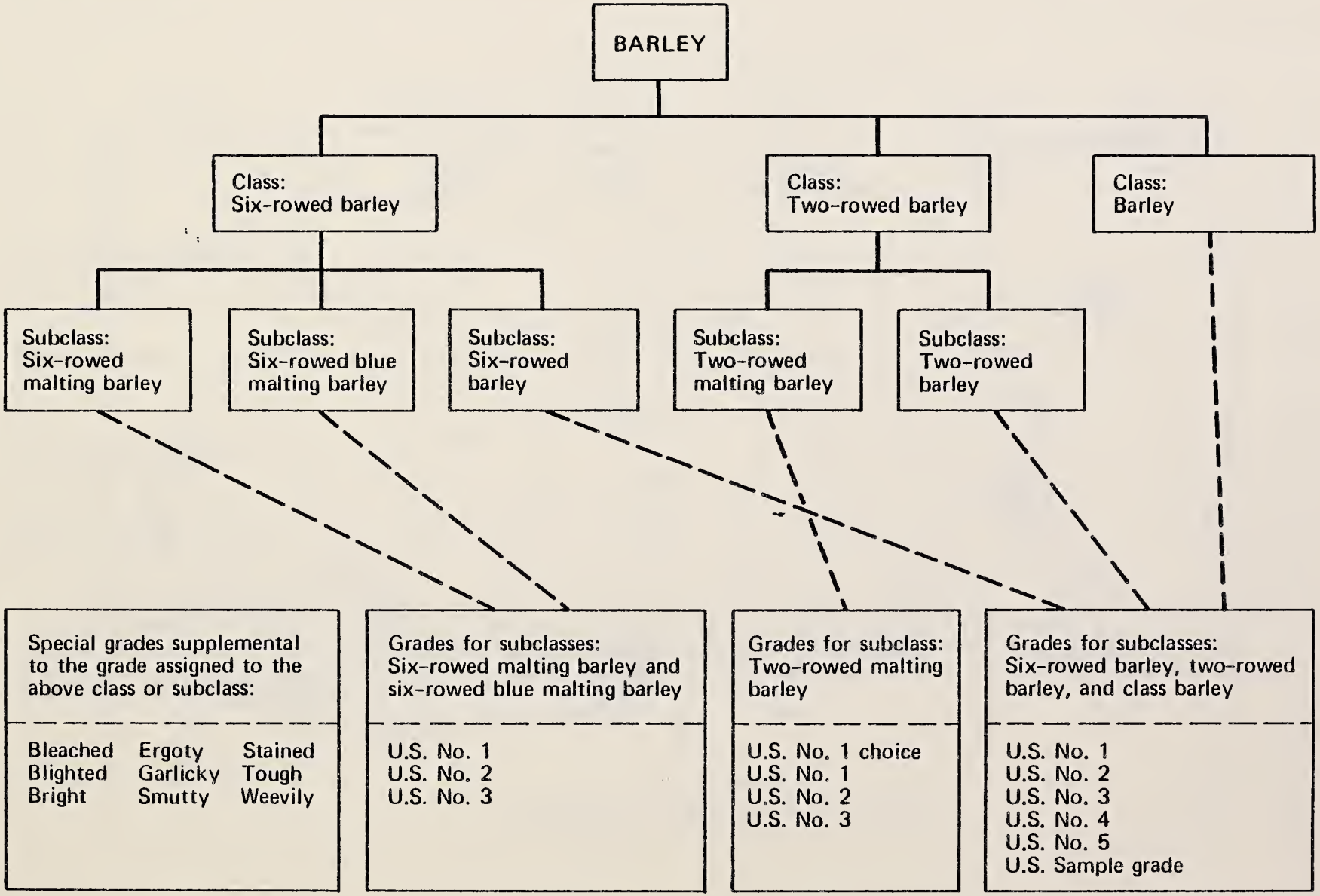
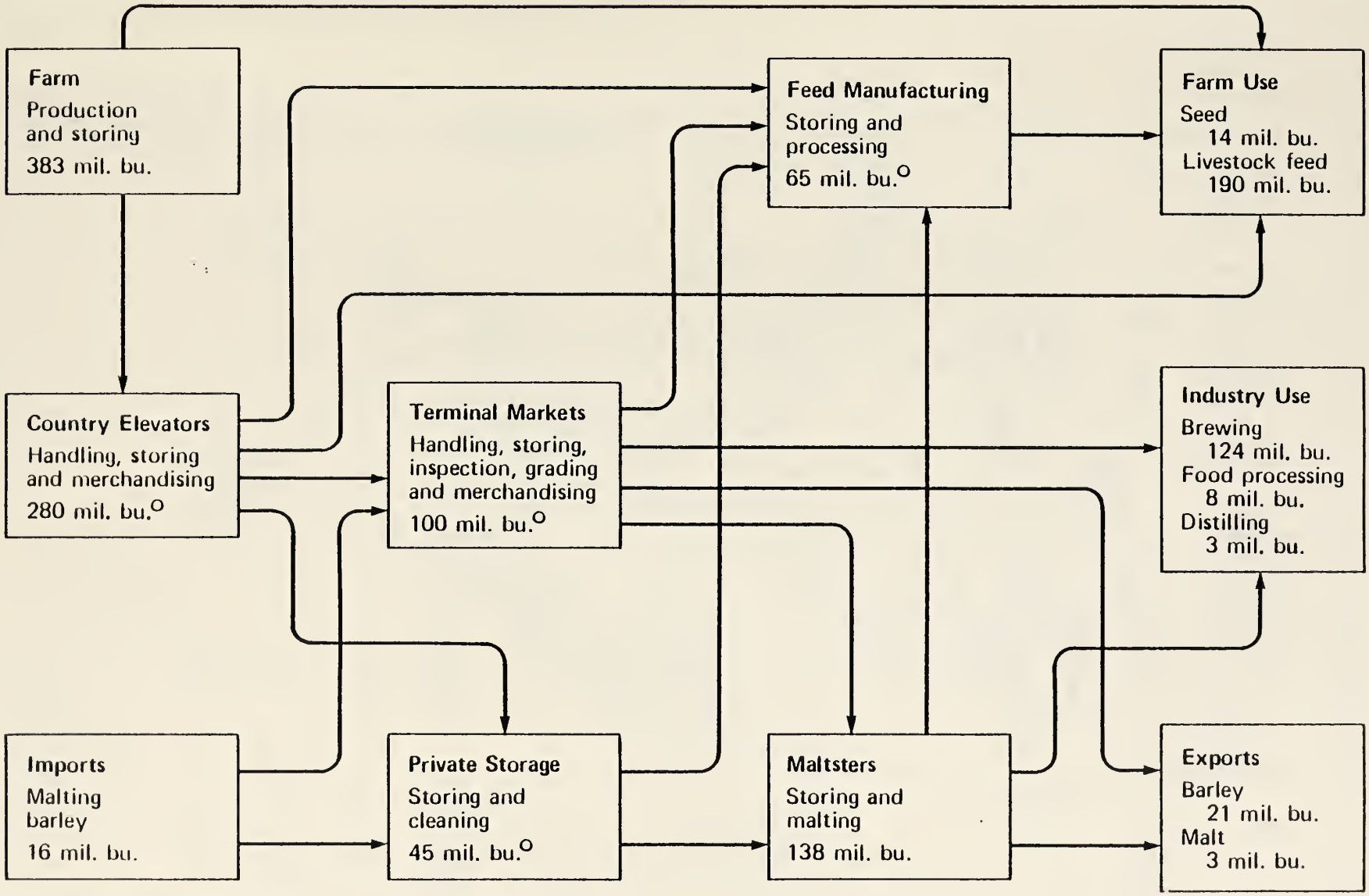


Figure 2

Estimated barley marketing flows, 1975/76 marketing year



°*Estimated from industry sources.*

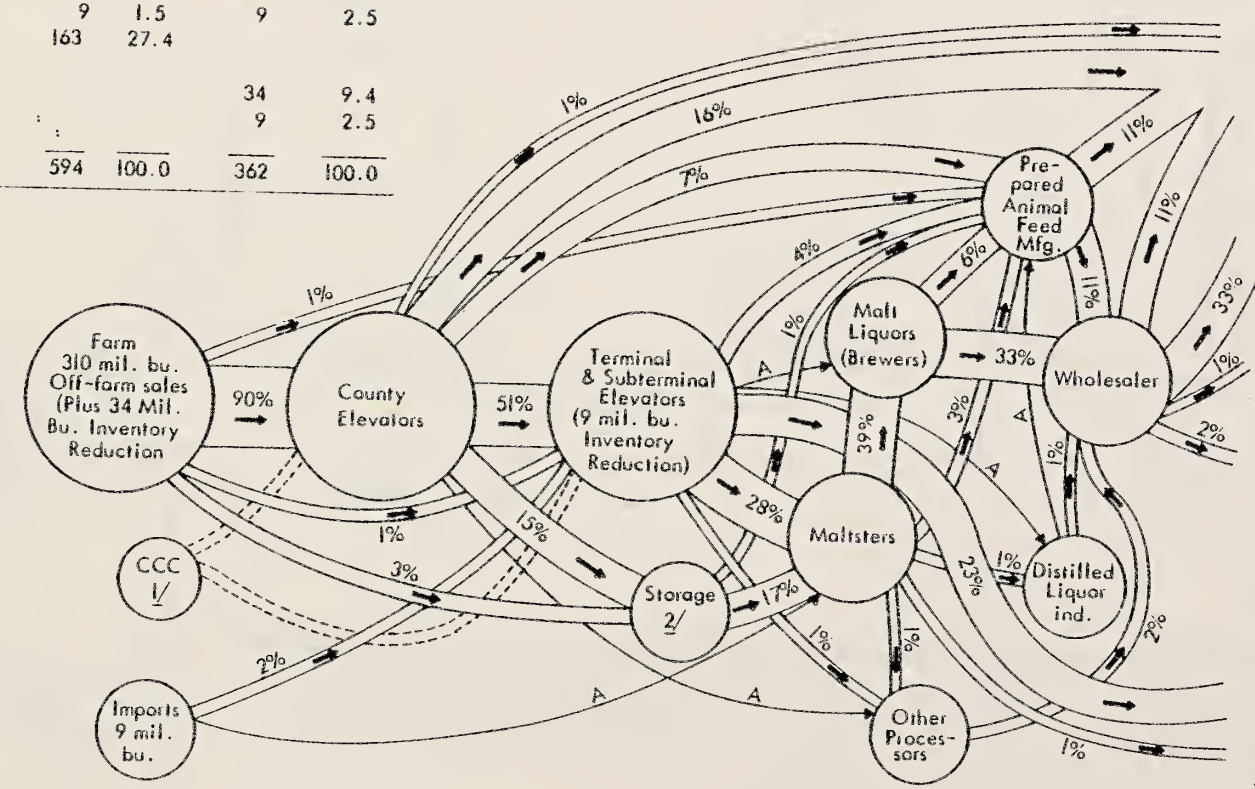
Not shown in this illustration is the beginning inventory of 92 million bushels and the ending inventory of 129 million bushels. These volumes tend to be scattered throughout the marketing chain at any given point in time either as stored barley, barley products, or working inventories.

Figure 3

BARLEY MARKETING FLOW

1973/74 Marketing Year

Item	Total Supply Mil. Bu.	Pct.	Vol. Marketed Mil. Bu.	Pct.
Production	422	71.1		
Sold Off-farm			310	85.6
Imports	9	1.5	9	2.5
Beg. Carryover	163	27.4		
Carryover Reduc.				
Farm			34	9.4
Elevator			9	2.5
Total	594	100.0	362	100.0



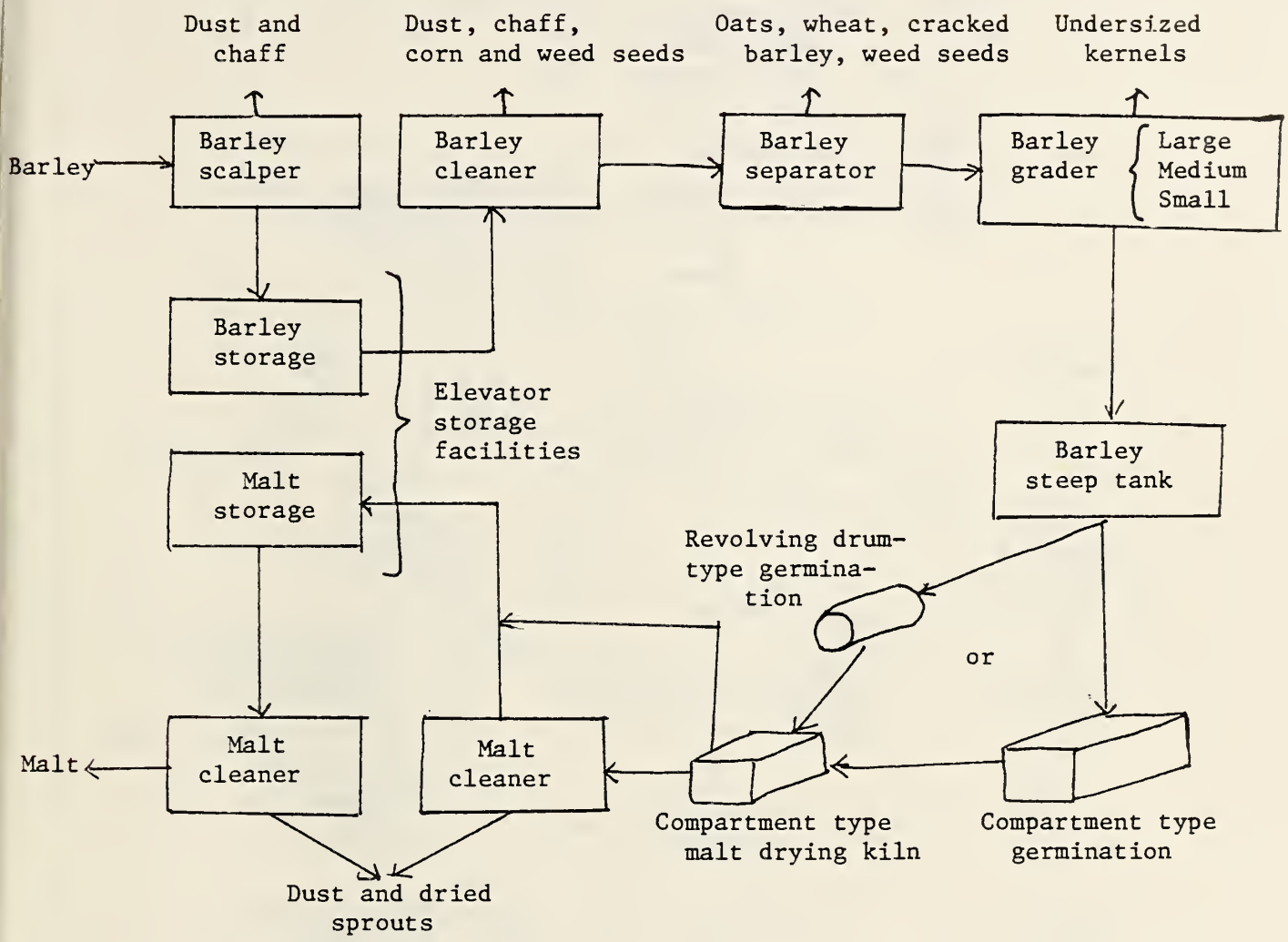
Mil. Bu. Equiv.	Item
4	Seed
79	Prepared Animal Feed
58	Whole Grain for feed
120	Brewers Malt: beer, ale, malt extracts.
5	Distillers Malt, alcohol, distilled spirits, whiskey.
8	Barley Food Products: soups, dressings, baby foods, cereal, flour
274	Total Domestic
85	Whole Grain
3	Processed Products
88	Total Exported
	Ending Carryover:
120	Whole Grain
55	On-farms
65	In Elevators

1/ None in 1973/74. A = Less than 0.5%. 100% volume marketed (362 mil. bu).
2/ Intermediate holding facilities for malt barley. Facilities may be located at country points or adjacent to malt plants.

Source: Feed Situation, ESCS, USDA, February 1976.

Figure 4

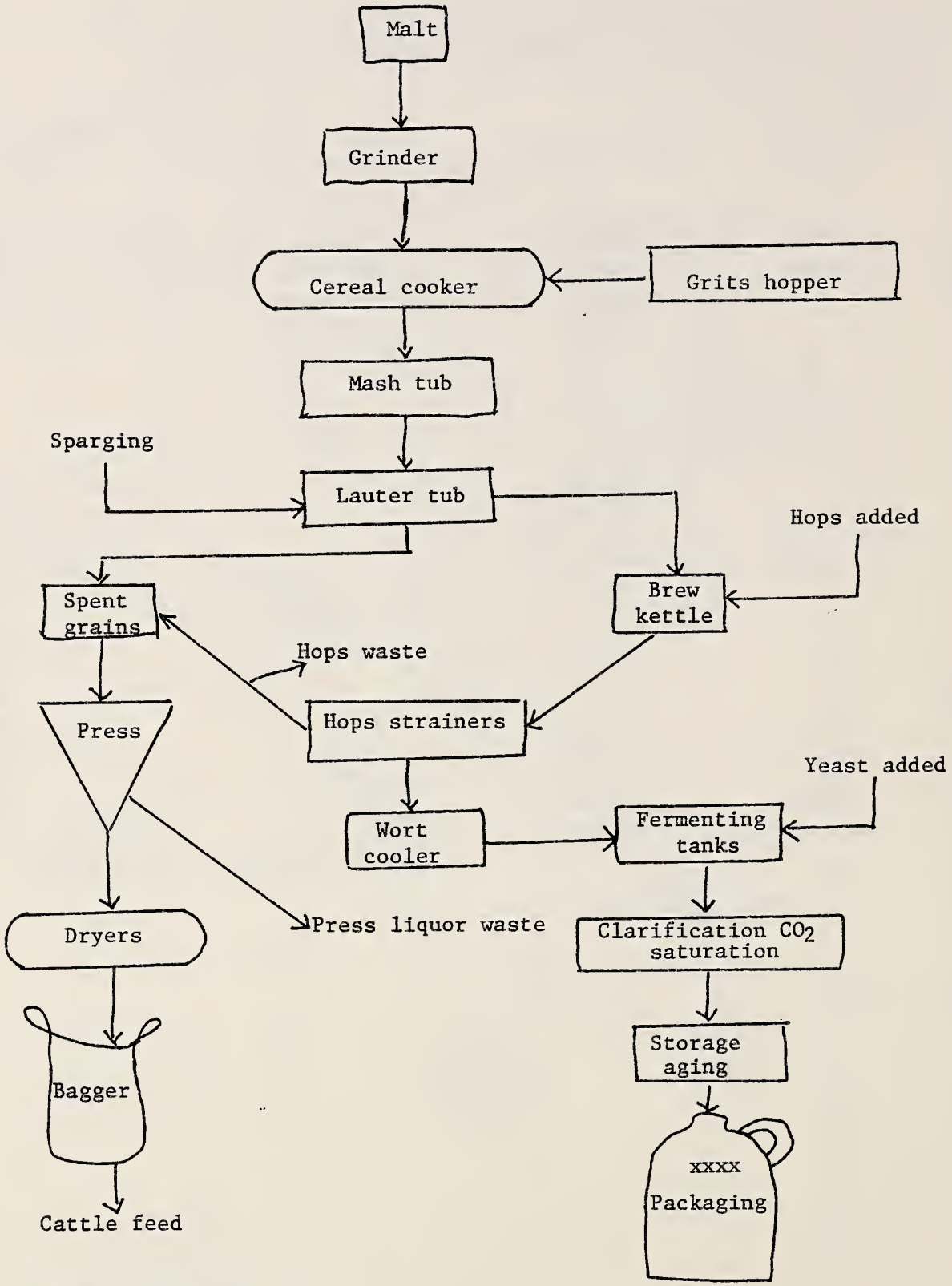
Flow diagram of malt plant



Source: (50).

Figure 5

Flow diagram of typical brewery operation



Source: (37), Feb. 1972.

Figure 6

World barley production: Proportion by continent and latitude, 1950 and 1975

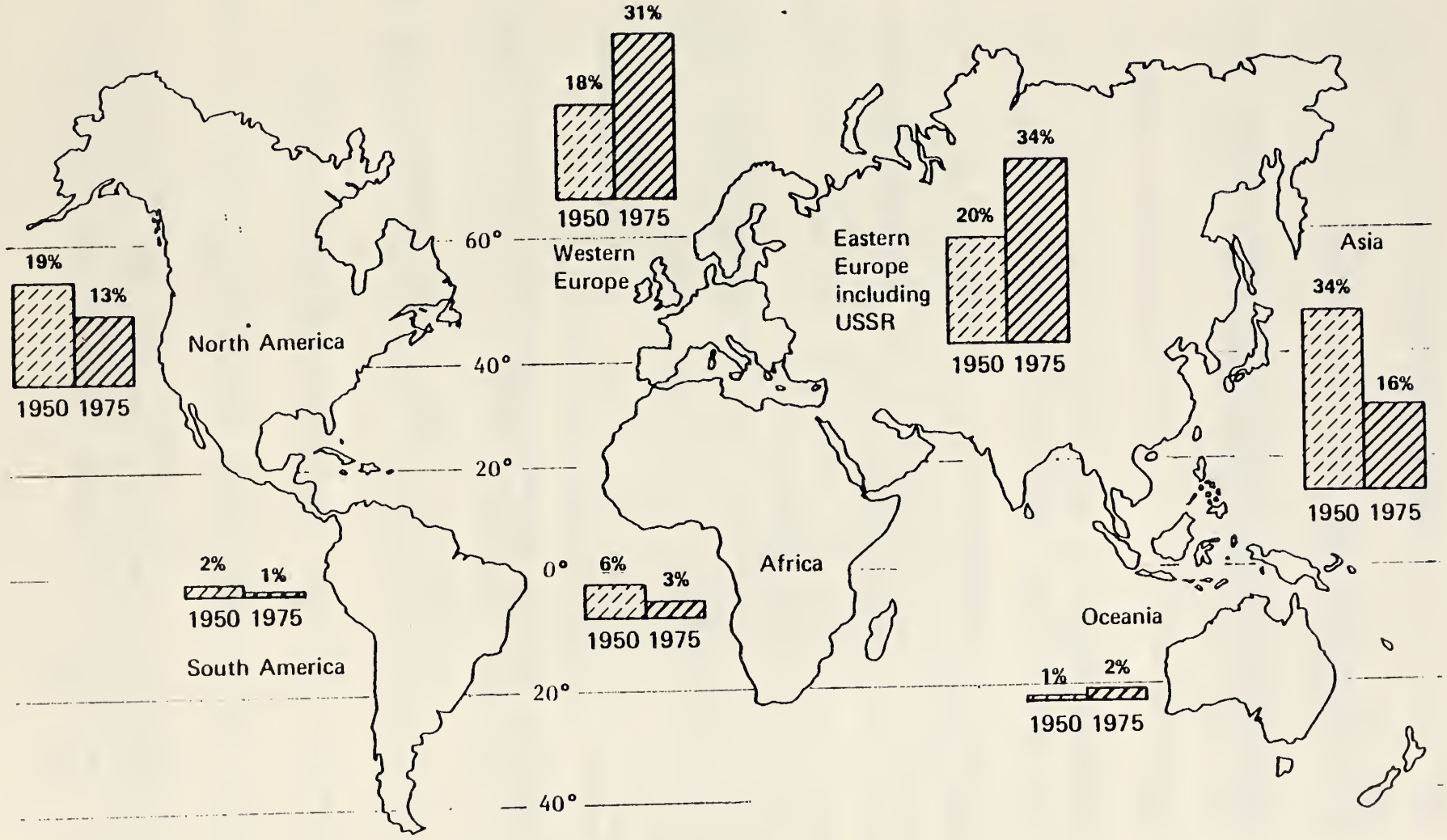


Figure 7

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